D-F180AN/F181/F400/F411/F415

SERVICE MANUAL

Ver 1.0 1998.06

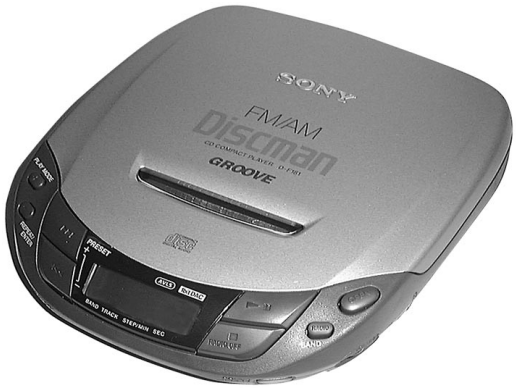

Photo : D-F181

US Model
D-F411/F415

Canadian Model
D-F181/F411

AEP Model
D-F180AN/F181/F411

UK Model
D-F181/F411

E Model

Australian Model
D-F181/F411/F415

Chinese Model
D-F411/F415

Tourist Model
D-F400

Model Name Using Similar Mechanism	D-180AN/180ANC/181/ 181C/181V/182CK/183
CD Mechanism Type	CDM-2811AAA
Optical Pick-up Name	DAX-01A

SPECIFICATIONS

Radio section

Frequency range

- AEP, UK, French, Saudi Arabia model:
  FM: 87.5 – 108.0MHz
  AM: 531 – 1,602kHz
- Except AEP, UK, French, Saudi Arabia, Tourist model:
  (STEP switch)
  9kHz step:
  FM: 87.5 – 108.0MHz
  AM: 531 – 1,710kHz
  10kHz step:
  FM: 87.5 – 108.0MHz
  AM: 530 – 1,710kHz
- Tourist model:
  (STEP switch)
  9kHz step:
  FM: 76.0 – 108.0MHz
  AM: 531 – 1,710kHz
  10kHz step:
  FM: 87.5 – 108.0MHz
  AM: 530 – 1,710kHz

Antenna

FM: Headphones/earphones cord antenna
AM: Built-in ferrite bar antenna

General

Power requirements

For the area code of the model you purchased, check the upper left side of the bar cord on the package.

- Sony BP-DM10 Rechargeable battery: 2.4V DC, Ni-Cd, 650mAh
  Sony BP-DM20 Rechargeable battery: 2.4V DC, Ni-MH, 1,200mAh
- Two LR6 (size AA) batteries: 3V DC
- AC power adaptor (DC IN 4.5V jack):
  US/Canadian/E92 model: 120V, 60Hz
  AEP/E13/Argentine model:
  220 – 230V, 50/60Hz
  UK model: 230 – 240V, 50Hz
  Saudi Arabia model: 110 – 240V, 50/60Hz
  Australian model: 240V, 50Hz
  Tourist, E33 model: 100 – 240V, 50/60Hz
  Hong Kong model: 220V, 50/60Hz
  Chinese model: 220V, 50Hz
- Sony CPM-300P mount plate for use on car battery: 4.5V DC

Dimensions (w/h/d) (without projecting parts and controls)

Approx. 133 × 33 × 152mm ($5^{1}/_{4} \times 1^{5}/_{16} \times 6$ in.)

Mass (without rechargeable battery)

Approx. 260g (9.2oz)

Operating temperature

5°C – 35°C (41°F – 95°F)

Supplied accessories

For the area code of the model you purchased, check the upper left side of the bar cord on the package.

D-180AN

Earphones (1)
Connecting cord (Phono plug × 2 ↔ stereo miniplug) (1)

D-F181

AC power adaptor (1)
AC plug adaptor (1)*
Earphones (1)
Connecting cord (Phono plug × 2 ↔ stereo miniplug) (1)
* Supplied with E33, E13 and Saudi Arabia models

— Continued on next page —

FM/AM COMPACT DISC COMPACT PLAYER

MICROFILM

SONY®

D-F400

AC power adaptor (1)
Earphones with remote control (1)
Rechargeable battery (1)
AC plug adaptor (1)

D-F411

AC power adaptor (1)
Headphones (1)*1
Earphones (1)*2
Connecting cord (Phono plug × 2 ↔ stereo miniplug) (1)*3
AC plug adaptor (1)*4

*1 Supplied with US model
*2 Not supplied with US model
*3 Not supplied with AEP, French and UK models
*4 Supplied with E33, E13 and Saudi Arabia models

D-F415

AC power adaptor (1)
Headphones with remote control (1)*1
Earphones with remote control (1)*2
Connecting cord (Phono plug × 2 ↔ stereo miniplug) (1)*1
Rechargeable battery (1)
AC plug adaptor (1)*3

*1 Supplied with US model
*2 Not supplied with US model
*3 Not supplied with E13 model

Design and specifications are subject to change without notice.

DANGER

Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

SECTION 1
SERVICING NOTES

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NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block.

Therefore, when checking the laser diode emission, observe from more than 30cm away from the objective lens.

Before Replacing the Optical pick-up Block

Please be sure to check thoroughly the parameters as per the "Optical pick-up Block Checking Procedure" (Part No. : 9-960-027-11) issued separately before replacing the optical Pick-up block.

Note and specifications required to check are given below.

- FOK output : IC501 ⑫ pin
  When checking FOK, remove the lead wire to disc motor.
- S curve P-to-P value : 0.9 – 1.5Vp-p IC501 ㉛ pin. (Connect pin ⑫ of IC501 (TP880) and ③ of IC501 (GND) with a jumper wire).
  When checking S curve P-to-P value, remove the lead wire to disc motor.
- Adjusted part for focus gain adjustment : RV503
- RF signal P-to-P value : 0.85 – 1.15Vp-p
- Traverse signal P-to-P value : 1.0 – 2.6Vp-p
- The repairing grating holder is impossible.
- Adjusted part for tracking gain adjustment : RV502

Precautions for Checking Emission of Laser Diode

Laser light of the equipment is focused by the object lens in the optical pick-up so that the light focuses on the reflection surface of the disc.

Therefore, be sure to keep your eyes more then 30cm apart from the object lens when you check the emission of laser diode.

Laser Diode Checking Methods

During normal operation of the equipment, emission of the laser diode is prohibited unless the upper panel is closed while turning ON the S801 (push switch type).

The following two checking methods for the laser diode are operable.

Method-1 (In the service mode or normal operation) : Emission of the laser diode is visually checked.

1. Open the upper lid.
2. Push the S801 as shown in Fig. 1 .
3. Check the object lens for confirming normal emission of the laser diode. If not emitting, there is a trouble in the automatic power control circuit or the optical pick-up. During normal operation, the laser diode is turned ON about 2.5 seconds for focus searching.

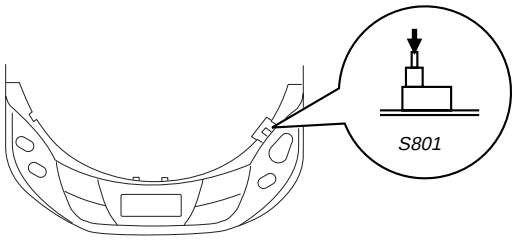
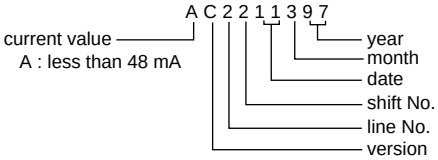


Fig.1 Method to push S801

Method-2 (In the service mode or normal operation) : Check the value of current flowing in the laser diode.

1. Remove the upper panel.
2. Read the current printed on the rear side of the optical pick-up. (Print on the rear side of the optical pick-up)



3. Connect a level meter as shown in Fig. 2
4. Press the ▶II key.
5. Calculate the current value by the reading of the digital voltmeter
   Reading of the tester (V) ÷ 4.7 (Ω) = current value (A)
   (Example) Reading of the digital voltmeter of 0.2256 V :
   0.2256 V ÷ 4.7 Ω = 0.048 (A) = 48 mA
6. Check that the current value is within the following range.

- Current value of the label $^{+5}_{-11}$ mA(25°C)
  Variation by temperature : 0.4mA / °C
  Current increases with as temperature increases.
  Current decreases with as temperature decreases.

If the current is more than the range above, there is a trouble in the automatic power control circuit or the laser diode is in deterioration.

If less than the range, a trouble exists in the automatic power control circuit or the optical pick-up.

[MAIN BOARD] (Conductor side)

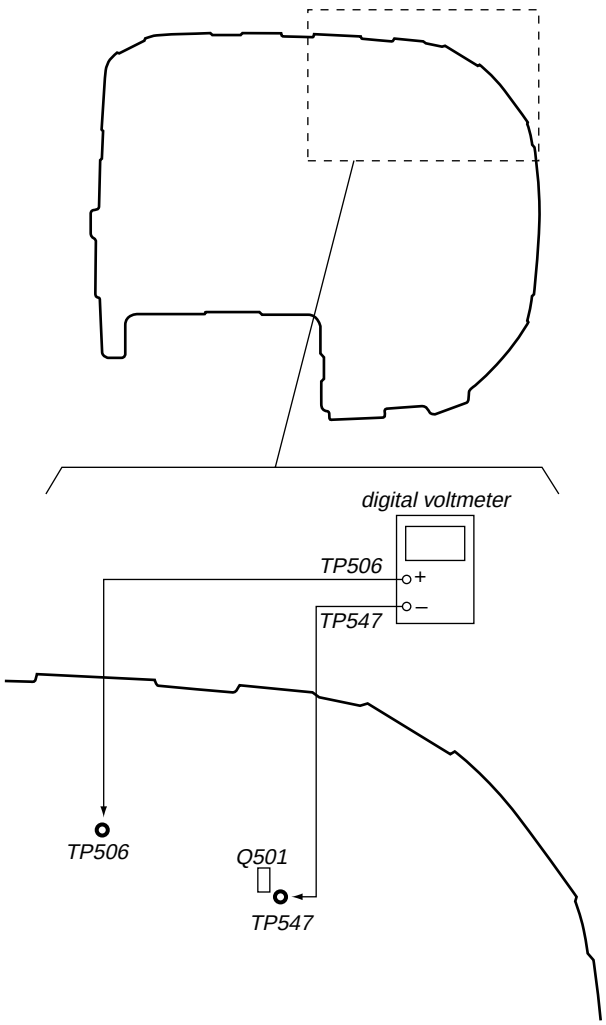
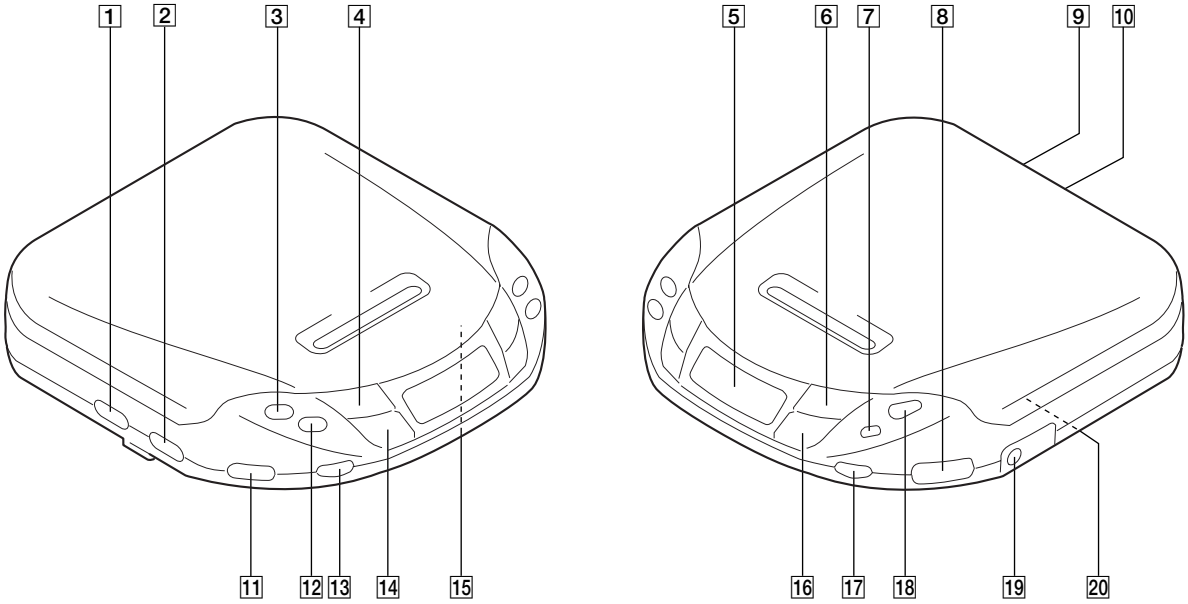


Fig.2 Digital Voltmeter Connecting Location

SECTION 2
GENERAL

LOCATION AND FUNCTION OF CONTROLS



1 DX/LOCAL (US, Canadian, E92) MONO/STEREO (Except US, Canadian, E92, Argentine) switch
2 RESUME switch
3 PLAY MODE, TUNING + button
4 ▶▶I button
5 Display panel
6 ▶II button
7 RADIO, BAND button
8 VOLUME control
9 LINE OUT jack
10 DC IN 4.5V jack
11 HOLD switch
12 REPEAT/ENTER, TUNING + button
13 MEMORY/ESP button
14 I◀◀ button
15 AVLS switch
16 ■ RADIO OFF button
17 SOUND button
18 OPEN button
19 ∩ headphones jack
20 9k/10k switch (Except AEP, UK, French, Saudi Arabia model)

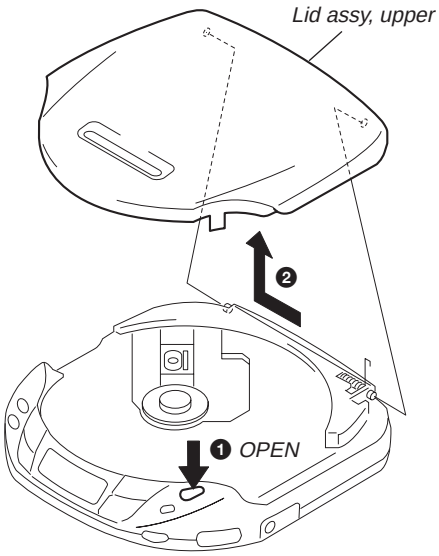
SECTION 3
DISASSEMBLY

Note : Disassemble the unit in the order as shown below.

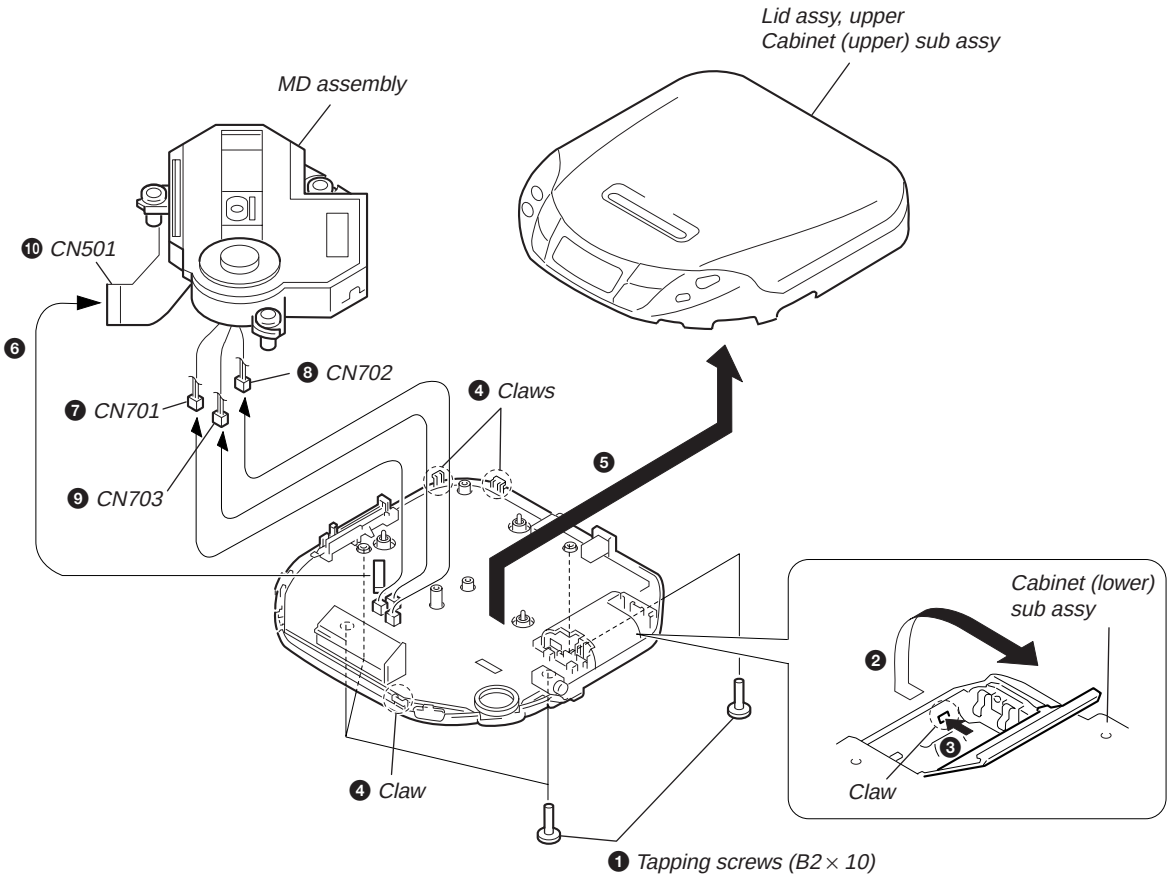
SET → *LID ASSY, UPPER*
SET → *MD ASSEMBLY* → *MAIN BOARD*

Note : Follow the disassembly procedure in the numerical order given.

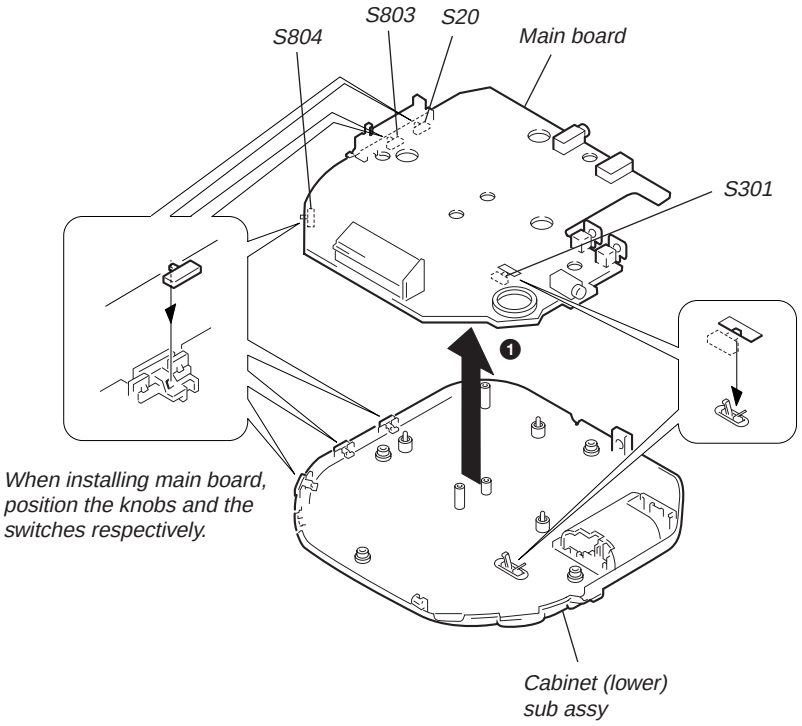
3-1. LID ASSY, UPPER



3-2. MD ASSEMBLY



3-3. MAIN BOARD



SECTION 4
SERVICE MODE

Service Mode (service program)

The equipment is provided with a service program built in the microcomputer, like conventional models.

Service program operation methods are described in the following.

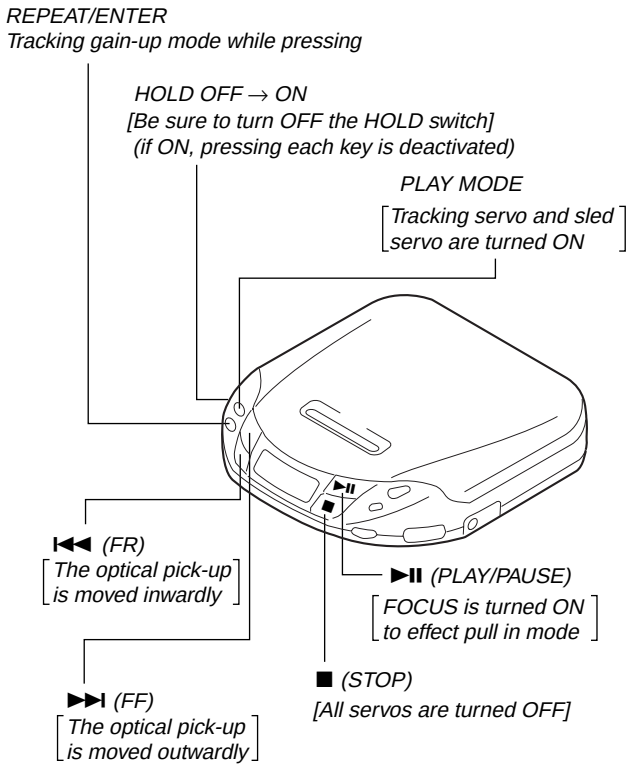

REPEAT/ENTER
Tracking gain-up mode while pressing
HOLD OFF → ON
[Be sure to turn OFF the HOLD switch]
(if ON, pressing each key is deactivated)
PLAY MODE
[Tracking servo and sled servo are turned ON]
I◀◀ (FR)
[The optical pick-up is moved inwardly]
▶II (PLAY/PAUSE)
[FOCUS is turned ON to effect pull in mode]
■ (STOP)
[All servos are turned OFF]
▶▶I (FF)
[The optical pick-up is moved outwardly]

Fig.3 Layout of each key

• Step 1 (Service mode setting method)

1. Turn OFF the HOLD switch the external power supply disconnected (power is not applied to the set).
2. Solder across the T802 (TEST) terminals (pin ㊿, IC801 (TEST) is grounded).
3. Connect an external power supply.
   Thus, the set is switched to the service mode.

• Step 2 (Operation in the service mode)

1. Once the service mode is effected, the LCD displays 5 indications each of which is repeatedly displayed.
   However, the following operations can be activated even if LCD indication is effected.
2. By pressing the ▶▶I or I◀◀ key, the optical pick-up movable inwardly or outwardly. However, if this is activated, tracking servo and sled servo are turned OFF, so it can be turned ON by pressing the PLAY MODE key, if required.
3. By pressing the REPEAT/ENTER key, the tracking gain-up mode becomes active.
4. By pressing the ▶II key, focus is turned ON from focus searching while entering CLV-S (pull-in mode).
   Without disc, focus searching is repeated continuously.
5. By pressing the PLAY MODE key, tracking servo, sled servo and CLV-A (servo in PLAY) are turned ON.
6. When 4. and 5. are performed, playing begins. No muting is ON in the service mode.
7. By pressing the ■ key, all servos (focus tracking and sled) are turned OFF. However, the disc motor revolves for a while by inertia.

• Step 3 (Resetting service mode)

1. Be sure to disconnect the external power supply and remove the solder bridge at the TEST terminals connected in setting.
2. The set thus becomes available for normal operation.

– MAIN BOARD – (Side A)

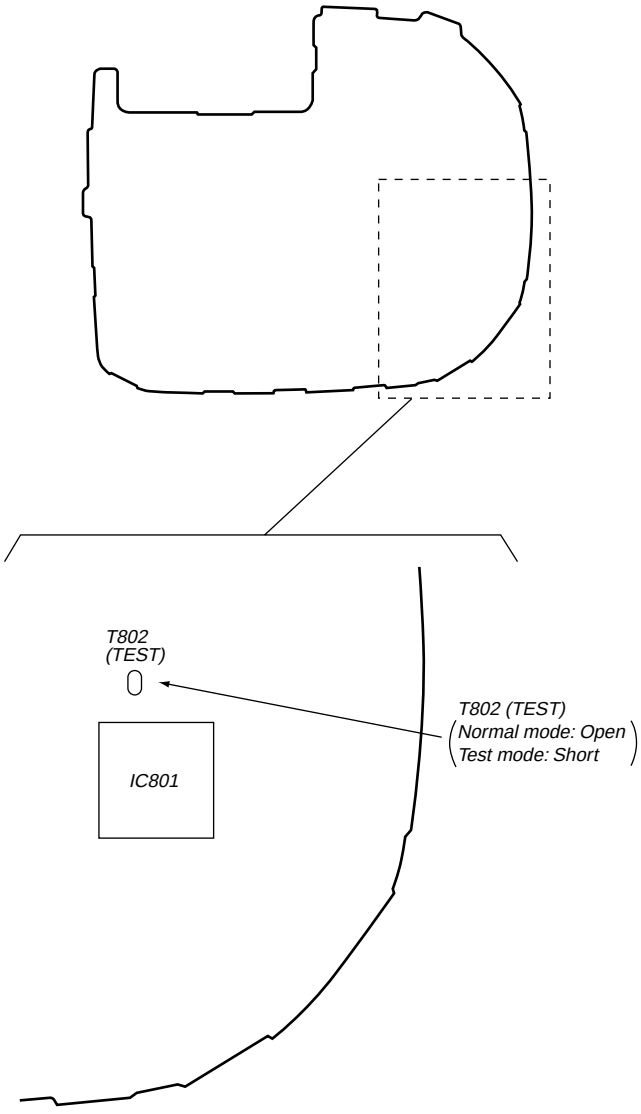


Fig.4 Location of test terminal

SECTION 5
ADJUSTMENTS

CD SECTION

Precautions for Adjustment

1. Before beginning adjustment, set the equipment to service mode. After the completion of adjustment, be sure to reset the service mode.
   For more information, see “Service Mode (service program)” on page 8.
2. Perform adjustments in the order given.
3. Use the disc (YEDS-18. Part No. 3-702-101-01) unless otherwise indicated.
4. Power supply voltage requirement : DC 4.5 V
   HOLD switch : OFF
   VOLUME : Minimum
   BASS BOOST switch : NORM
   AVLS switch : OFF

Before Beginning Adjustment

Set the equipment to service mode (See page 8) and check the following.
If there in an error, repair the equipment.

• Checking of the sled motor

1. Open the upper panel.
2. Press the ▶▶I and I◀◀ keys and check that the optical pick-up can move smoothly without sluggishness or abnormal noise from innermost periphery to outermost periphery then to innermost periphery.
   ▶▶I : The optical pick-up moves outwardly
   I◀◀ : The optical pick-up moves inwardly

• Checking of focus searching

1. Open the upper panel.
2. Press the ▶II key. (Focus searching operation is activated continuously).
3. Check the object lens of the optical pick-up for smooth up/down motion without sluggishness or abnormal noise.
4. Press the ■ key.
   Check that focus searching operation is deactivated. If not, again press the ■ key slightly longer.

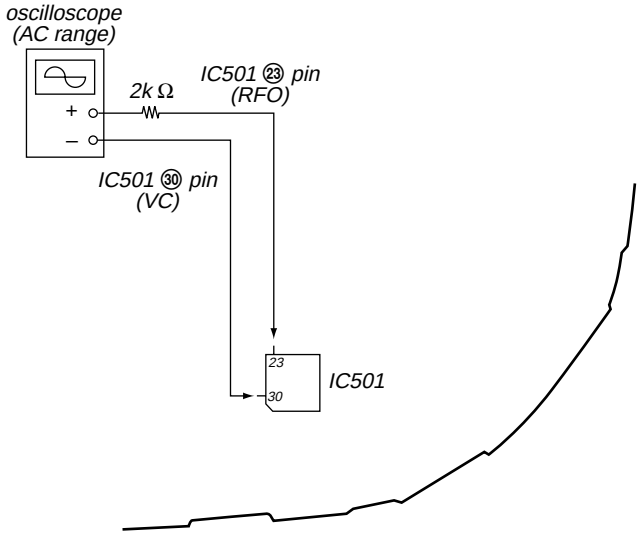
Focus Bias Check

Condition :

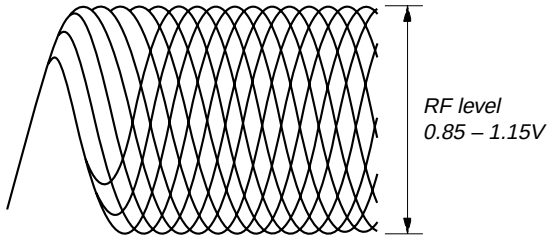
• Hold the set in horizontal state.

Procedure :

[MAIN BOARD] (Side B)



1. Set the equipment to service mode stop state (See page 8).
2. Connect the oscilloscope between IC501 ㉓ pin (RF0) and ㉚ pin (VC) on the MAIN board.
3. Move the optical pick-up by Pressing the ▶▶I and I◀◀ keys.
4. Put the disc (YEDS-18).
5. Press the ▶II key.
   (From focus searching, focus is turned ON while entering CLV drawing-in mode. Tracking and sled are turned OFF.)
6. Press the PLAY MODE key. (Both tracking and sled are turned ON).
7. Check the oscilloscope waveform is as shown below.
   A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.



• RF Signal Reference Waveform (eye pattern)
  To watch the eye pattern, set the oscilloscope to AC range and increase the vertical sensitivity of the oscilloscope for easy watching.

8. Stop removing of the motor by pressing the ■ key.
9. After the completion of adjustment, reset service mode. (See page 8)

Focus/Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up relative to mechanical noise and mechanical shock when the 2-axis device operate. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.

This adjustment has to be performed upon replacing any of the following parts :

- Optical pick-up
- RV503 (Focus gain)
- RV502 (Tracking gain)

Normally, be sure not to move RV503 (focus gain) and RV502 (tracking gain).

– Focus Gain Adjustment –

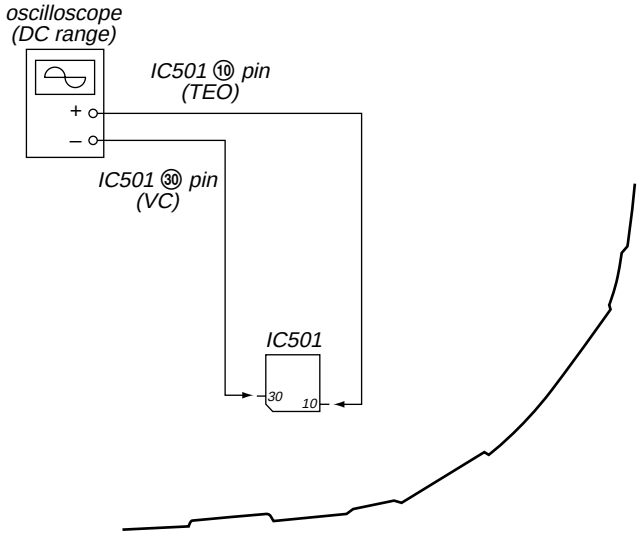
Procedure :

This adjustment is not performed. If focus gain RV503 is turned, set to mechanical center.

– Tracking Gain Adjustment –

(perform at normal operation)

[MAIN BOARD] (Side B)



1. Place the optical pick-up level, horizontally. (If the optical pick-up is not level, the 2-axis device will be weighted and adjustment cannot be done.)
2. Connect the oscilloscope between IC501 ⑩ pin (TEO) and ㉚ pin (VC) on the MAIN board.
3. Set the disc (YEDS-18) and Press the ▶II (▶▶I) key.
4. Turn RV502 slightly clockwise (tracking gain drops) and obtain a waveform with a fundamental wave (waveform has large waves) as in Fig. 1 .
5. Turn RV502 slowly counterclockwise (tracking gain rises) until the fundamental wave disappears (no large waves) as in Fig. 2.
6. Set RV502 to the position about 30°counterclockwise from the position obtained in step 5. If RV502 contact point is more than 90° counterclockwise from mechanical center, tracking gain is too high. In this case, readjust from step 4.
7. Press ▶II (▶▶I) or I◀◀ keys and observe the 100 track jump waveform. Check that no traverse waveform appears for both ▶II (▶▶I) or I◀◀ directions. (See Fig. 3 and 4.) It is acceptable if the traverse waveform appears only now and then, but if it appears constantly raise tracking gain slightly and check step 7 again.
8. Check that there is no abnormal amount of operation noise (white noise) from the 2-axis device. If there is, tracking gain is too high, readjust starting with step 4.

The waveforms are those measured with the oscilloscope set as shown below.

- VOLT/DIV : 50mV
- TIME/DIV : 5mS
- Waveform when tracking gain lowered.
  Fundamental wave appears (Large amplitude appears.)

Fig. 1

- Waveform when fundamental wave disappears (Large amplitude does not appear.)

Fig. 2

- Waveform when no traverse waveform during 100 track jump. (Brake application is smooth because of adjustment.)

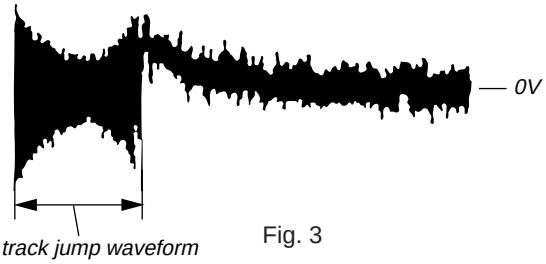


Fig. 3

- Waveform when no traverse waveform during 100 track jump. (Brake application is poor because of adjustment.)

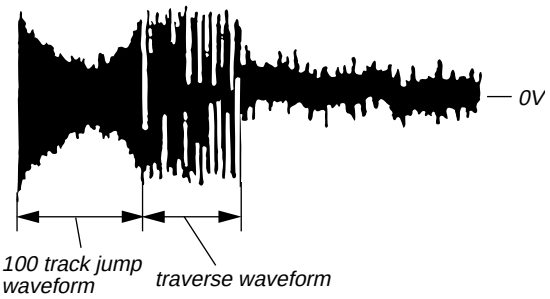
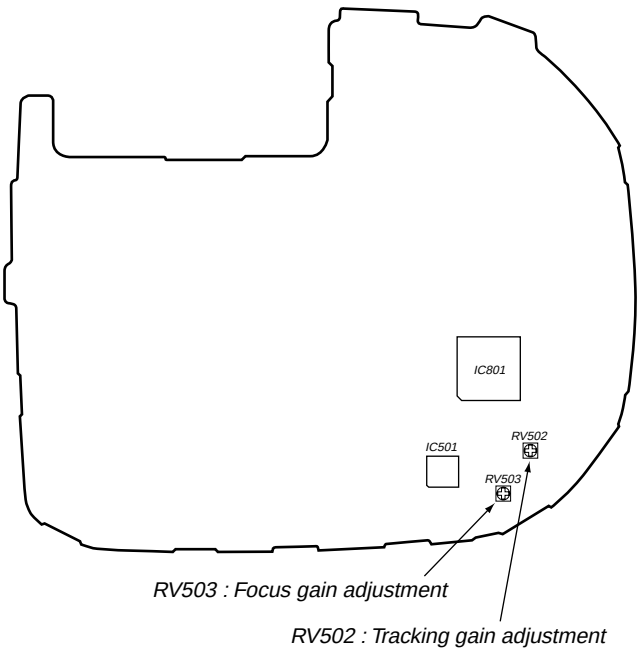


Fig. 4

Adjustment Location :

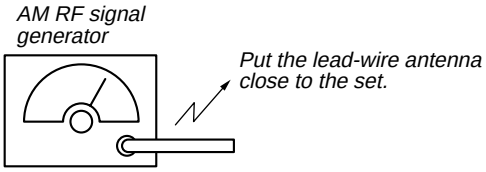
[MAIN BOARD] (Side A)



TUNER SECTION

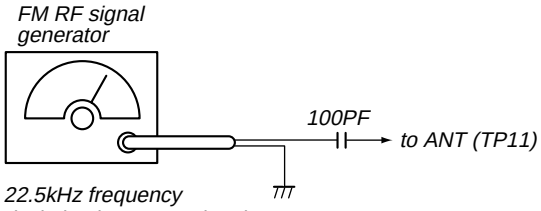
[AM]
BAND switch : AM
9k/10k switch (S19) : 9k (Tourist)
: 10k (Except Tourist)

(S19 is not mounted in the AEP, UK, French, Saudi Arabia model)

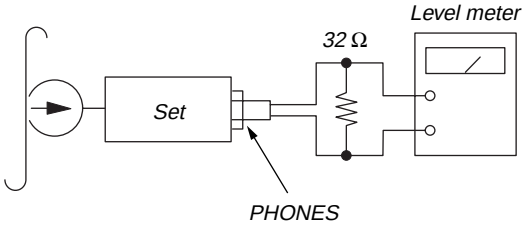


30% amplitude modulation by 400Hz signal.
Output level : as low as possible

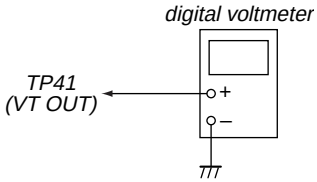
[FM]
BAND switch : FM
STEREO/MONO (DX/LOCAL) switch (S20) : STEREO (DX)



22.5kHz frequency deviation by 400Hz signal.
Output level : as low as possible.



(Tuning voltage)



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustment should be finally done by the trimmer capacitors.

( ) : AEP, UK, French, Saudi Arabia, Tourist model

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L3	620kHz (621kHz)
CT3	1,400kHz (1,404kHz)

( ) : AEP, UK, French, Saudi Arabia, Tourist model

AM TUNING VOLTAGE ADJUSTMENT		
Adjustment part	Frequency display	Reading on Digital Voltmeter
L4	530kHz (531kHz)	1.45V – 1.55V
confirmation	1,710kHz (1,602kHz)	8.0V – 9.0V (7.0V – 8.2V)

( ) : Tourist model

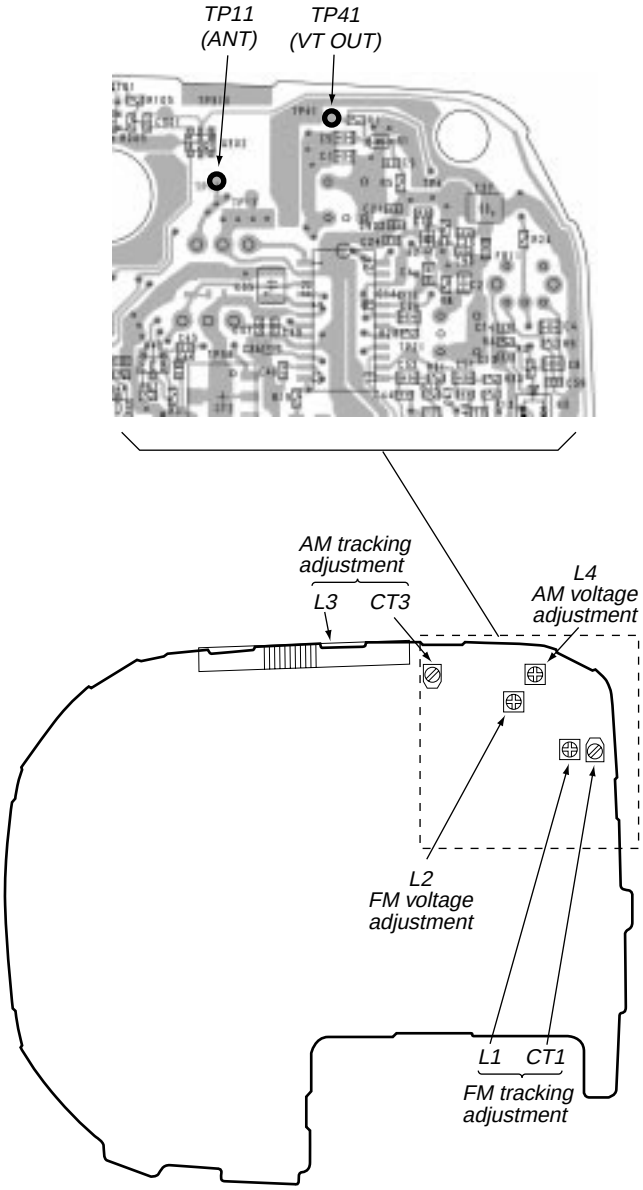
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on level meter.	
L1	87.5MHz (76MHz)
CT1	108MHz

( ) : Tourist model

FM TUNING VOLTAGE ADJUSTMENT		
Adjustment part	Frequency display	Reading on Digital Voltmeter
L2	87.5MHz (76.0MHz)	2.95V – 3.05V (0.95V – 1.05V)
confirmation	108MHz	7.8V – 9.0V (8.2V – 9.4V)

Adjustment Location:

[MAIN BOARD] (Side A)



SECTION 6
DIAGRAMS

6-1. IC PIN FUNCTION DISCRIPTION

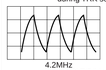
• IC1 µPC17072GB-552-1A7

Pin No.	Pin Name	I/O	Description
1	Unused	O	Unused
2	TUMUTE	O	H: mute on
3	SK	O	serial clock to EEPROM
4	AMCTRL	O	AM/FM band control. L-FM, H-AM
5	CS	O	EEPROM chip select
6	L/O-SW	O	pin 54 :- H: LINE OUT L: TUREQ
7	IF-REQ	O	request IF. *H only during auto scan*
8	TUON	O	'H' radio on
9	AVLS/XHOLD SW	O	pin 10 :-H: XAVLS L: XHOLD
10	XAVLS/XHOLD	I	AVLS/HOLD input
11	CDON	I	'H': CD micon on
12	HIDC/BATT	I	HI-DC/BATT input (ADC)
13	KEY/RMKEY	I	KEY/RMKEY input (ADC)
14	DO/DI	I/O	serial data line to/from EEPROM
15	XDCDT	I	DC in status input. L-DC in
16	XTUNER SW-IN	I	TUNER-ON/BAND key.
17	AM/FM-IFC	I	AM/FM IF signal input
18	GND	—	ground
19	EO	O	PLL error output
20	VCOL	I	PLL local oscillator input (AM)
21	VCOH	I	PLL local oscillator input (FM)
22	VREG0	—	PLL voltage regulator
23	VDD	—	positive power supply
24	XOUT	—	crystal resonator connection pins
25	XIN	—	crystal resonator connection pins
26	VREG1	—	oscillation circuit voltage regulator
27	VLCD0	—	LCD drive voltage
28	CAP0	—	capacitor for LCD drive voltage
29	CAP1	—	capacitor for LCD drive voltage
30	VLCD1	—	LCD drive voltage
31 to 34	COM0 – COM3	O	LCD common signal output
35 to 49	SEG0 – SEG14	O	LCD segment signal output
50	CE	I	chip enable
51	XRMKEY-INT	I	pin 13 :-H-main set key input L-remote control key input
52	BEEP	O	BEEP output (L/H/3kHz)
53	XST	I	Stereo detect
54	TUREQ/XL/O	I	serial input synchronize signal/LINE-OUT detect
55	SCK/GROOVE	I/O	serial clock from CD micon/DBB output
56	SDI/XBASS	I/O	serial data from CD micon/DBB output

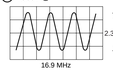
Pin No.	Pin Name	I/O	Description
1	VDD (VCPU)	—	positive power supply
2	DRV MUTE O DRV	O	not used (open)
3	XGROOVE 0-DBB	O	“L”: Headphones IC bass enable
4	XLT-O-ESP	O	latch output terminal for ESP “H”: latch.
5	PWRSW-O-H/P	O	power switch of headphones “H”: headphones power on
6	AMUTE-O-HP	O	analog mute control output terminal “H”: mute
7	XSOE-O-DSP	O	not used (open)
8	ESPON-O-RF	O	not used (open)
9	DACLT-O-DAC	O	CPU serial data latch (DAC IC) “H”: latch
10	C2POEN-O-ESP	O	C2PO signal control “L”: play “H”: FF/FR search
11	XPCON-O-PWR	O	power on/off control output “L”: power on.
12	CE-O-TU	O	chip enable for tuner micon “H”: enable TUNER micon
13	VLCD3	—	supply terminal of LCD bias power supply
14	VLCD2	—	supply terminal of LCD bias power supply
15	VLCD1	—	supply terminal of LCD bias power supply
16	VSS (GND)	—	ground
17	NDLY (GND)	—	ground
18	CHGON-O-PWR	O	charging control terminal “H”: charge on
19	TEOADJ-O-TEO	O	TEO adjustment control terminal “H”: TEO adjustment on
20	XMCRST-I-PWR	I	system reset input terminal “L”: reset
21	OSC1	—	system clock oscillator input terminal (4.1943MHz)
22	OSC2	—	system clock oscillator input terminal (4.1943MHz)
23	SDT-I-ESP	I	serial data input from RAM Control IC
24	SDT-O-ESP	O	serial data output to RAM Control IC
25	SCK-O-ESP	O	serial clock output to RAM Control IC
26	XL/O-I-L/OJACK	I	LINE OUT jack detection terminal “L”: LINE OUT exist
27	XALVS-I-SW	I	AVLS switch detection terminal “L”: AVLS on
28	XHOLD-I-SW	I	HOLD switch detection terminal “L”: HOLD on
29	XLMT-I-MD	I	Limit switch detection terminal “L”: Limit switch on
30	XRSM-I-SW	I	RESUME switch detection terminal “L”: RESUME on
31	WP-XDCDT-IPWR	I	DC-in detection terminal “L”: DC-in input
32	WP-XTU/AM/FM-I-KEY	I	RADIO key detection terminal “L”: RADIO key input
33	WP-XKEY-I-SW	I	key-press detection terminal “L”: main unit key input
34	WP-RMKEY-I-WRMT	I	remote key detection terminal “L”: remote key input
35	WP-XOPEN-I-SW	I	door open switch detection terminal “L”: open
36	WP-RCHG-I-SW	I	charging switch detection terminal “H”: chargeable battery in
37	TU-O-VCPU	O	TUNER Vcpu control output “H”: TUNER Vcpu on
38	XCD-O-VCPU	O	CD Vcpu control output “L”: CD Vcpu on
39	SDT-I-DSP	I	serial data input terminal from DSP
40	SDT-O-DSP	O	serial data output terminal to DSP
41	SCK-O-DSP	O	serial clock output terminal to DSP
42	FREQ-COV1-1	—	frequency coverage selection for TUNER
43	FREQ-COV2-1	—	frequency coverage selection for TUNER
44	BEEP-O-H/P	O	beep signal output terminal. “H”: beep on
45	INT-SCOR-I-DSP	I	sub code sync S0+SI input terminal
46	TUON/CDWP-INT-TU	I	“H”: TUNER ON/CD interrupt terminal
47	VDD (VCPU)	—	positive power supply
48	FOK-I-RF	I	focus OK input terminal “H”: Focus okay
49	BUSY-I-DSP	I	BUSY signal input terminal
50	TUNERTEST-1	I	TUNER test mode

Pin No.	Pin Name	I/O	Description
51	NOT USED	I	
52	VREFH (VCPU-REF)	I	A/D port positive power supply reference
53	VREFL (GND-REF)	I	A/D port ground reference
54	AD-I-ESPSL/TEST	I	ESP selector/test
55	AD-I-KEY	I	A/D input terminal for main unit key
56	AD-I-WRMT	I	A/D input terminal for remote control key
57	AD-I-HI-DC	I	A/D input terminal for DC in voltage detection
58	AD-I-BAT	I	A/D input terminal for battery/dry cell detection
59	AD-I-CHGMNT	I	A/D input terminal for charging monitor
60	VSS (GND)	—	ground
61	AD-I-VCC	I	A/D input terminal for Vcc voltage monitor
62	AD-I-DSP-OFFSET	I	A/D input terminal for DSP off-set monitor
63, 64	NOT USED	—	
65	STEP-I-TU (9K/10K)	I	TUNER (9K/10K) step detection input terminal
66 to 69	NOT USED	—	
70	ACKNOWLEDGE-I-TU	I	TUNER acknowledge input terminal
71	NOT ISED	—	
72	CDON-O-TU	O	CD micon status output terminal “H”: CD mode
73	R/W-O-DSP	O	read/write control output terminal.
74	CDAUDIO-O-ASW	O	CD audio signal control terminal “H”: CD audio on
75	TUAUDIO-O-ASW	O	TUNER audio signal control terminal “H”: TUNER audio on
76	SCK-O-TU	O	serial clock output terminal for TUNER micon
77	SDT-O-TU	O	serial data output terminal for TUNER micon
78	C2POCTRL	O	C2PO signal control terminal
79	TUREQ-O-TU	O	serial output to TUNER micon
80	XRST-O-DSP	O	reset output terminal for DSP “L”: reset

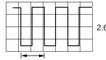
• Waveform

① IC502 ㊽ SERVICE MODE during TRK servo OFF


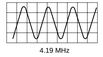
VOLT/DIV : 1 V AC
TIME/DIV : 0.1msec

⑤ IC301 ⑯


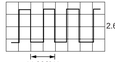
VOLT/DIV : 1 V AC
TIME/DIV : 50nsec

② IC502 ㊾ ESP : OFF


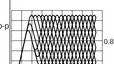
VOLT/DIV : 1 V AC
TIME/DIV : 50µsec

⑥ IC801 ⑳


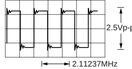
VOLT/DIV : 1 V AC
TIME/DIV : 0.2msec

③ IC502 ㊿ ESP : OFF


VOLT/DIV : 1 V AC
TIME/DIV : 20µsec

⑦ IC501 ㉑ PLAY MODE


VOLT/DIV : 0.2 V AC
TIME/DIV : 0.5msec

④ IC502 ㊼ ESP : OFF


VOLT/DIV : 1 V AC
TIME/DIV : 0.2µsec

6-2. PRINTED WIRING BOARD

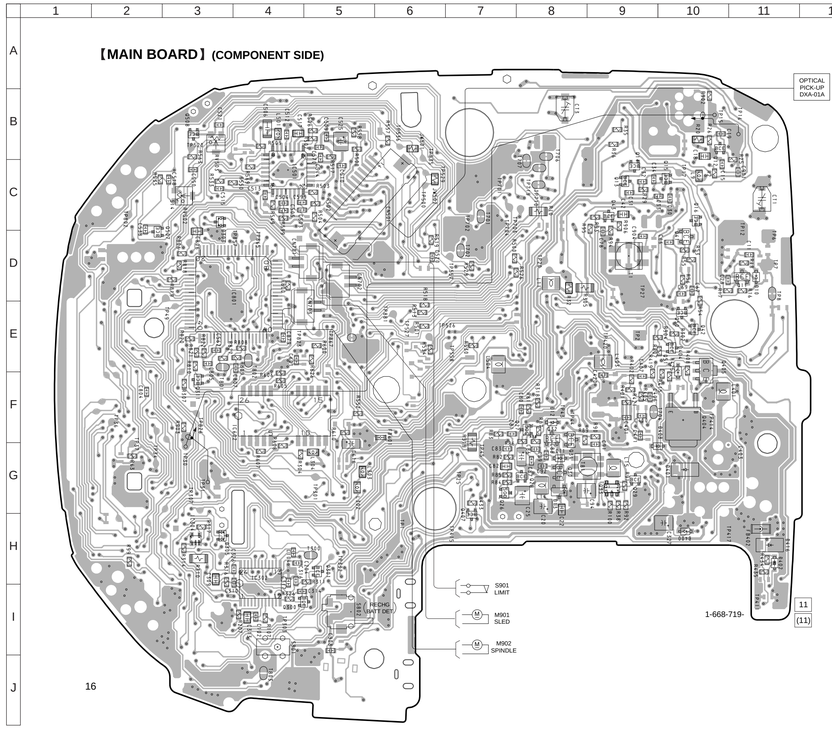
• Semiconductor Location

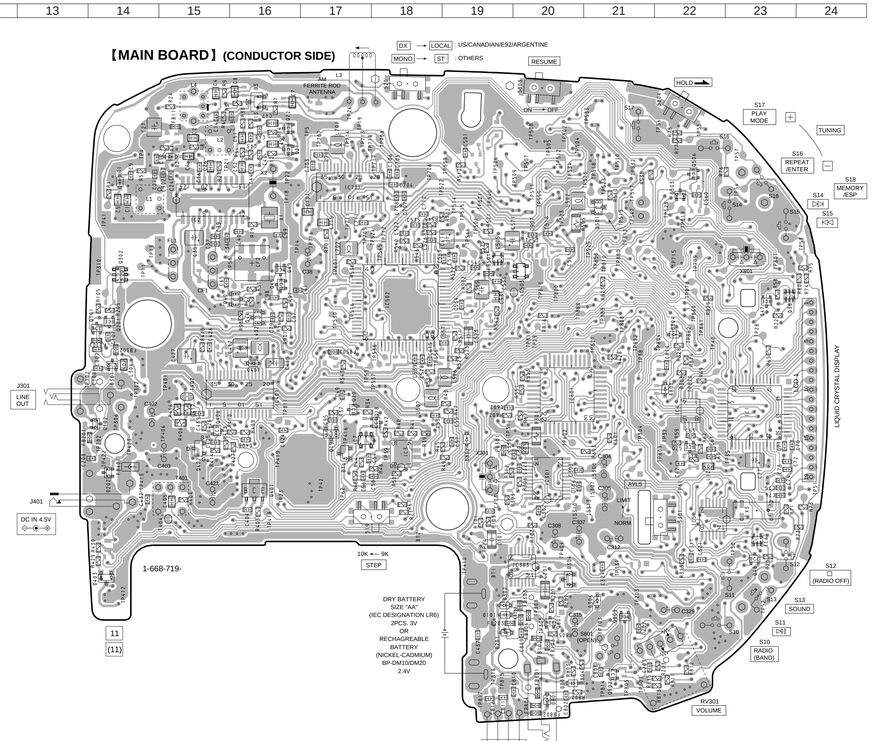
Ref. No.	Location	Ref. No.	Location
D1	C-14	Q11	D-11
D2	B-15	Q12	B-10
D3	B-16	Q13	C-9
D10	D-11	Q14	C-9
D11	G-8	Q15	C-10
D12	F-8	Q16	C-10
D13	G-8	Q18	F-18
D14	G-17	Q19	F-17
D101	I-19	Q20	F-17
D102	F-14	Q21	B-16
D201	I-19	Q22	B-16
D202	G-14	Q25	G-22
D301	E-14	Q26	G-7
D302	I-19	Q27	F-8
D303	C-3	Q28	G-8
D304	H-20	Q29	G-9
D305	H-3	Q30	G-8
D306	I-21	Q31	F-8
D400	H-10	Q32	F-8
D401	G-10	Q33	G-9
D402	H-11	Q38	D-23
D403	H-14	Q40	D-16
D404	F-10	Q41	D-10
D407	E-16	Q42	E-10
D416	H-11	Q43	C-9
D503	C-22	Q44	E-16
D800	F-22	Q45	D-16
D801	J-20	Q47	D-23
D802	F-19	Q48	H-23
D806	J-20	Q49	D-16
		Q50	E-10
IC1	F-23	Q51	E-10
IC2	C-15	Q101	E-14
IC3	G-18	Q201	E-14
IC4	F-22	Q300	I-4
IC5	H-22	Q301	H-5
IC6	H-23	Q302	D-14
IC7	F-17	Q311	F-3
IC301	G-20	Q401	G-16
IC302	I-4	Q402	G-15
IC303	H-20	Q404	F-10
IC304	H-3	Q405	E-10
IC401	F-16	Q406	F-15
IC501	C-4	Q407	H-7
IC502	D-18	Q501	C-21
IC503	D-20	Q506	C-22
IC505	D-19	Q507	D-2
IC601	F-20	Q508	B-3
IC602	F-4	Q801	I-20
IC701	C-17	Q802	J-21
IC801	D-4	Q809	I-21

Note on Printed Wiring Board:
- ⟷ : parts extracted from the component side.
- ○ : Through hole.
- △ : internal component.
- ▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

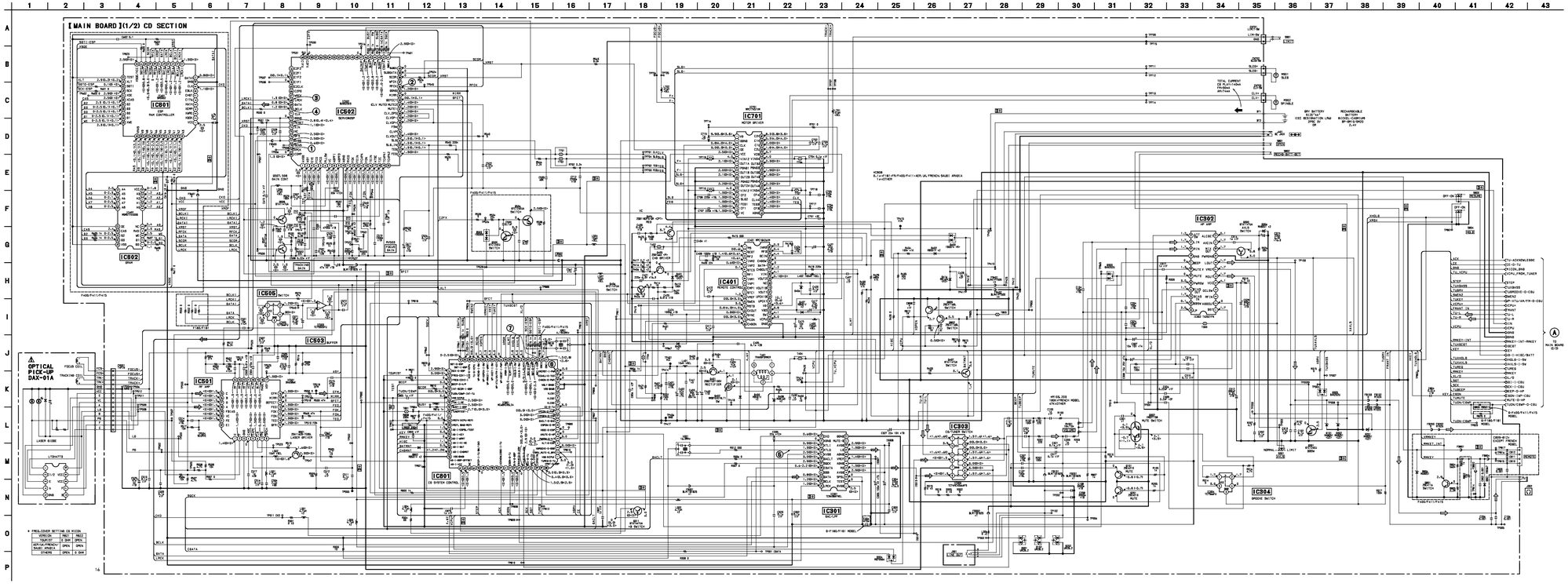
Caution:
Pattern face side: (Conductor B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component A) Parts on the parts face side seen from the parts face are indicated.





6-3. SCHEMATIC DIAGRAM — CD SECTION —

• Refer to page 16 for Waveform.

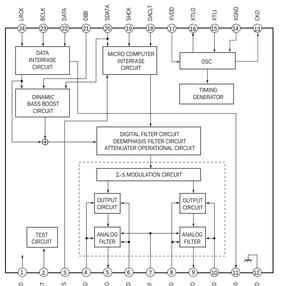

MAIN BOARD (1/2) CD SECTION
IC601
MAIN CONTROLLER
IC602
DRIVE
IC603
SERVO/DSP
IC604
EEPROM
IC605
SWITCH
IC606
SWITCH
IC607
BUFFER
IC501
RF AMP
IC861
CD SYSTEM CONTROL
IC701
MOTOR DRIVER
IC401
REMOTE CONTROL
IC902
RF AMP
IC903
MUTE
IC901
REGULATOR
IC904
SPEAKER SWITCH
OPTICAL PICK-UP DAX-01A
LASER DIODE
LITEON-FTB
FOCUS COIL
TRACKING COIL
SLED MOTOR
SPINDLE MOTOR
LOADING MOTOR
PHOTO INTERRUPTER
PHOTO REFLECTOR
LOADING SWITCH
CHUCK SWITCH
TRAY SWITCH
OPTICAL PICK-UP
PRE-COMP SETTING CD MODEL
TEMP 0.5mV
TEMP/2F 0.5mV
RF/FOK/TRKNCY 0.5Vp-p
SUBQ/RFDET 0.5Vp-p
ETHERS OPEN
OPEN
OPEN
0.5mV
0.5mV
0.5mV

6-4. SCHEMATIC DIAGRAM — TUNER SECTION —

【MAIN BOARD](2/2)
TUNER SECTION

VERSION	EXCEPT US/CANADIAN/ ESG/ARGENTINE	US/CANADIAN/ ESG/ARGENTINE	TOURIST
C1	5P×2SL	5P×2SL	OPEN
C2	13P×2SJ	13P×2SJ	1P×2SJ
C5	330P×2CH	330P×2CH	150P×2CH
C6	0.001×2B	0.001×2B	220P×2CH
R24	47K	47K	39K
R59	8K	8K	4K
R64	4.7K	4.7K	5.6K
R8	4.7K	4.7K	OPEN
C25	OPEN	0.01	OPEN
FB11	0	FERRITE BEAD	0
R662	0	OPEN	0
R663	0	OPEN	0
L14	OPEN	2.2UH×2	OPEN

IC301 TC9438FNEL



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

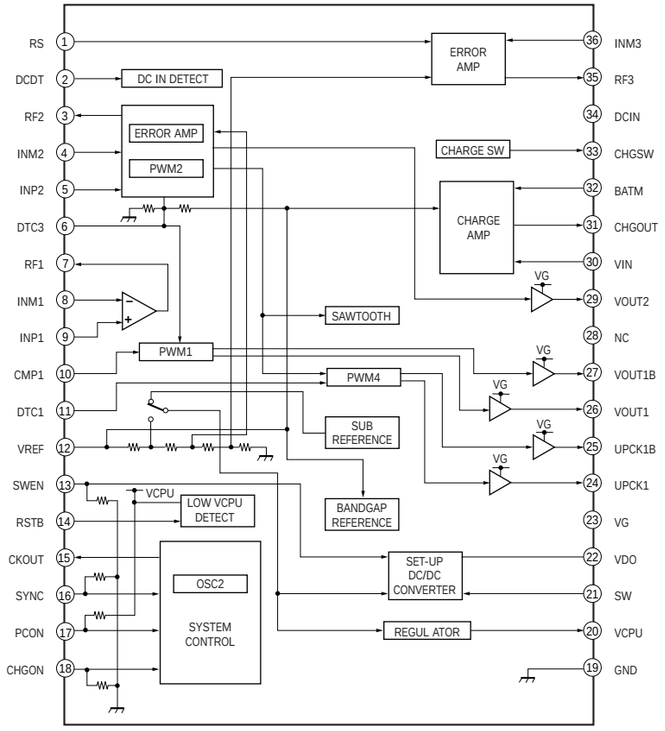
Note:	Note:
The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.

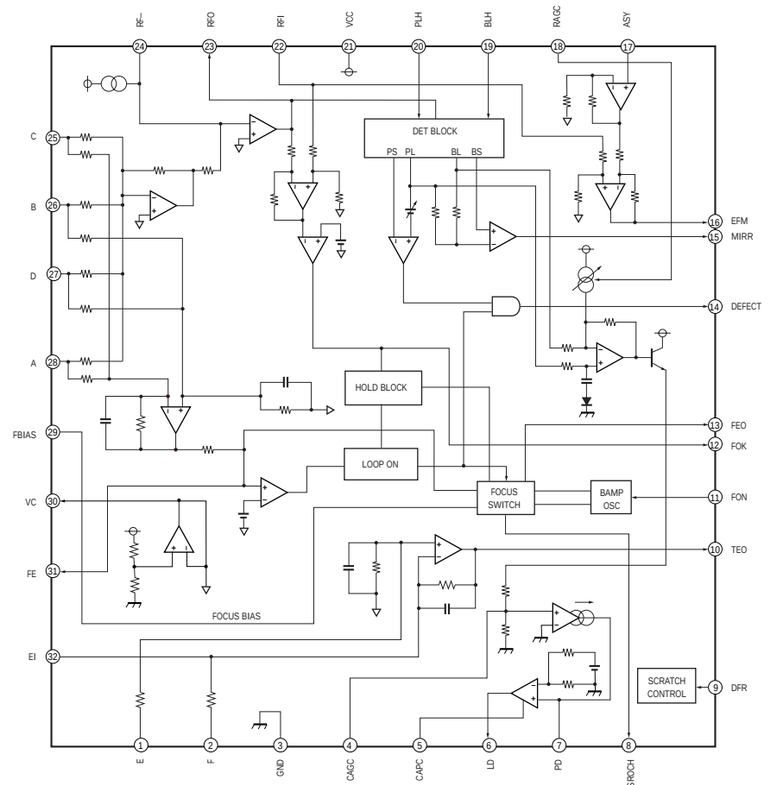
6-5. IC BLOCK DIAGRAMS

- Voltages and waveforms are dc with respect to ground in service mode.
  no mark : CD PLAY OR COMMON
  ( ) : FM
  < > : AM
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ➡ : AM
  ⇨ : CD
- Abbreviation
  E13 : AC 220 – 230V area model
  E33 : AC 100 – 240V area model
  E92 : Central & South American

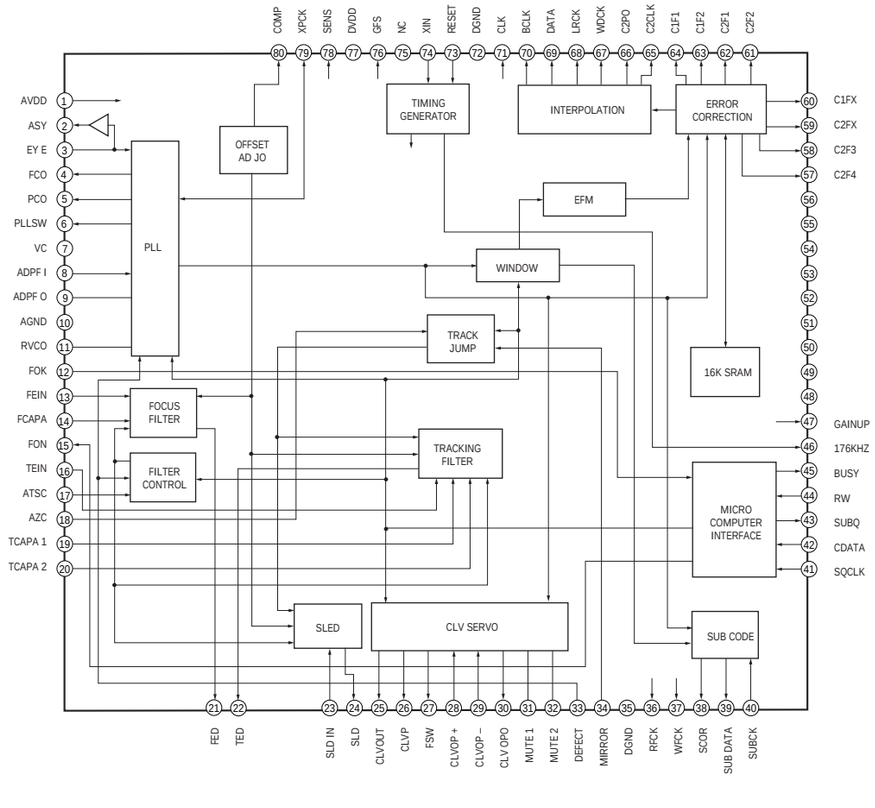
IC401 MPC18A26VMEL



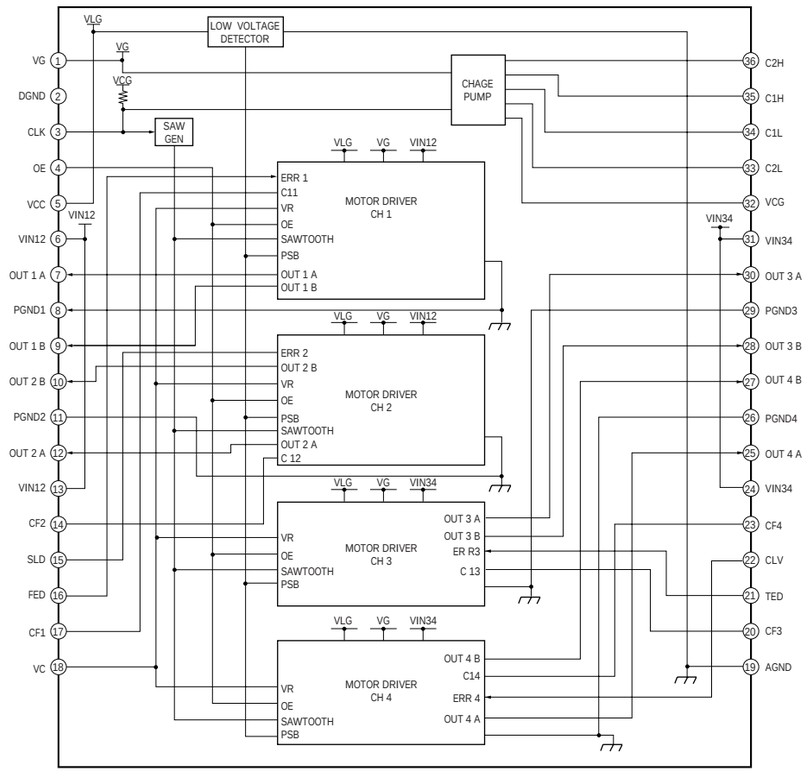
IC501 BA6386K



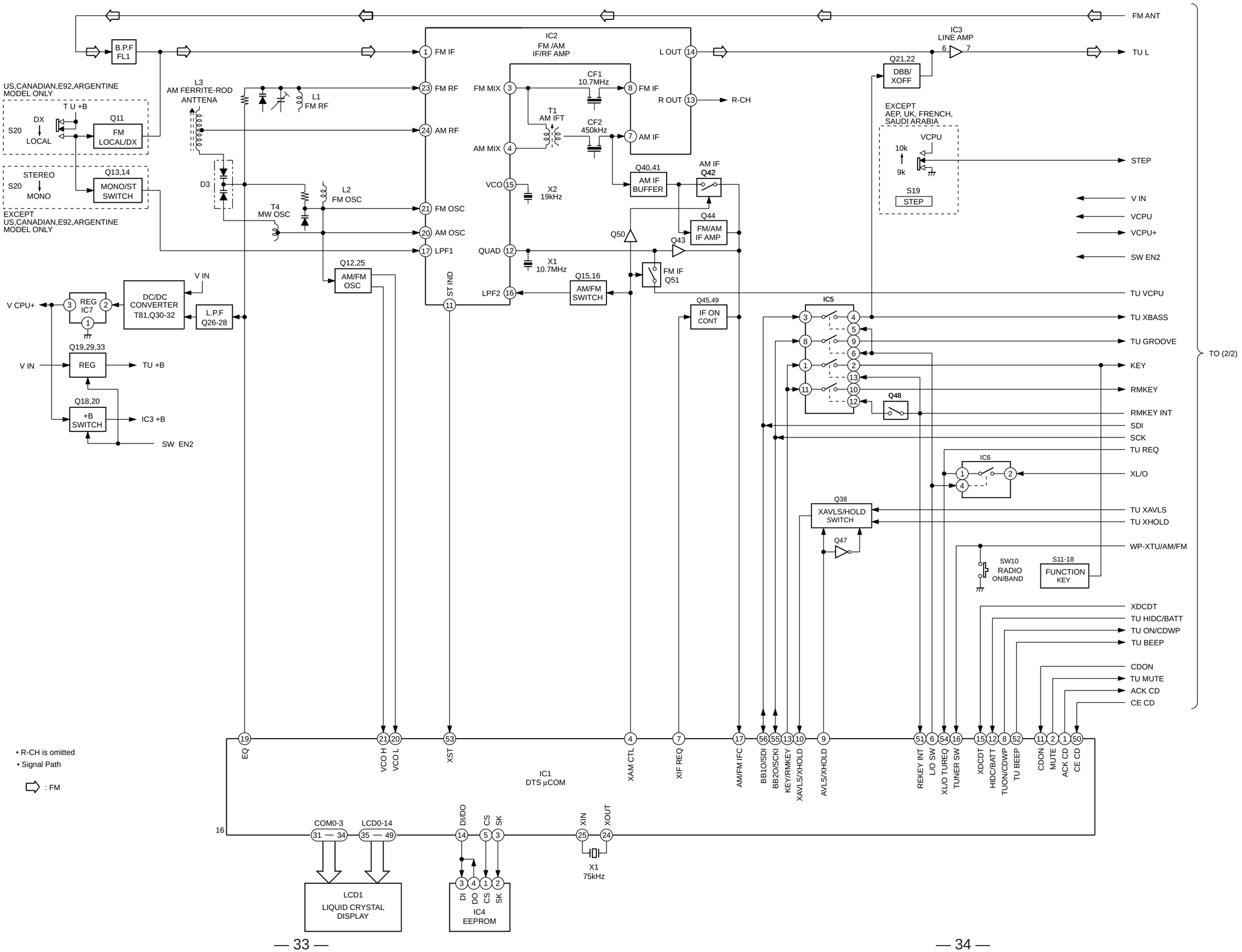
IC502 BU9325KS



IC701 MPC17A51VMEL



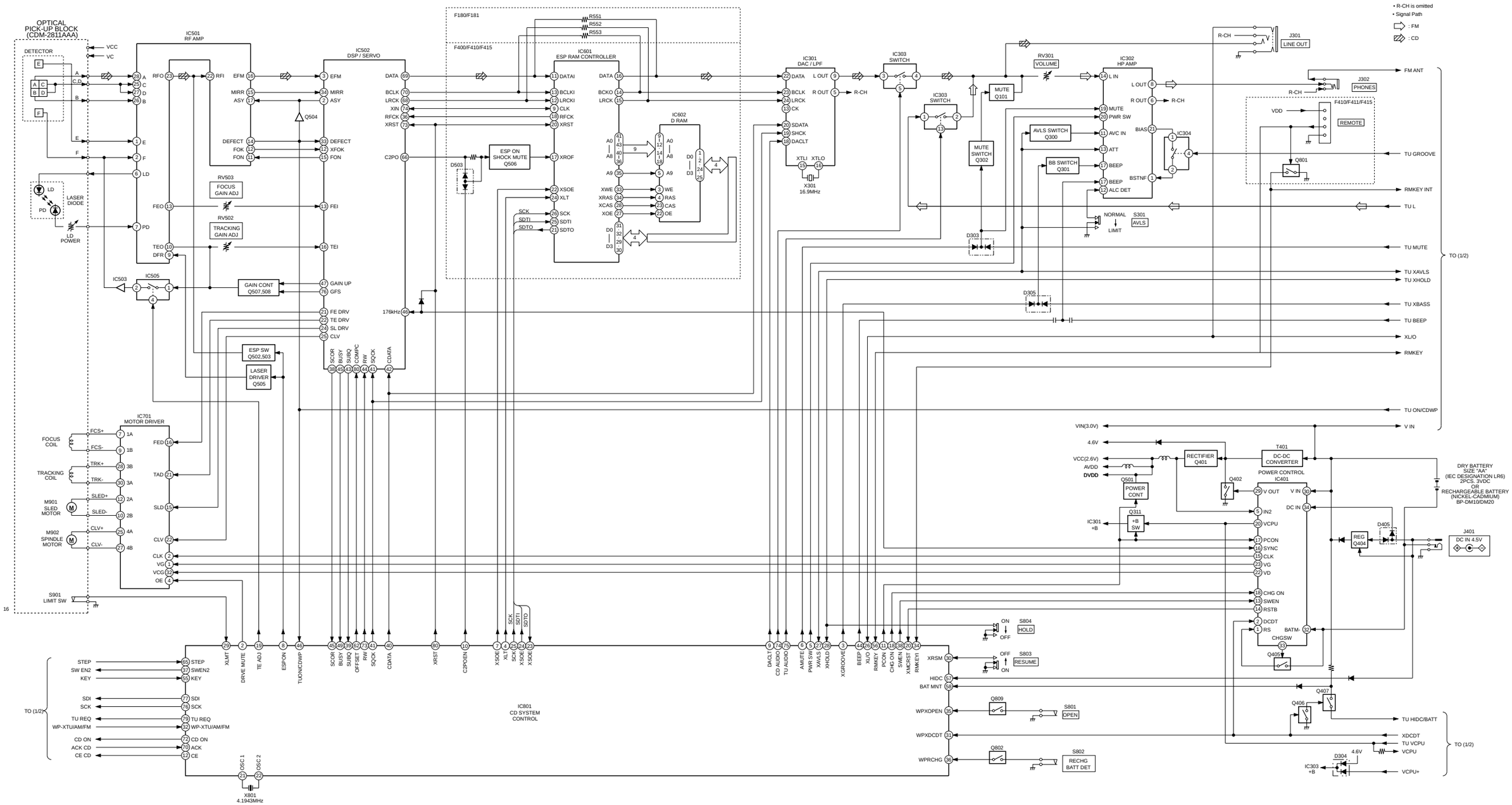
6-6. BLOCK DIAGRAM — TUNER SECTION —



• R-CH is omitted
• Signal Path

: FM

6-7. BLOCK DIAGRAM — CD SECTION —



SECTION 7
EXPLODED VIEWS

NOTE:

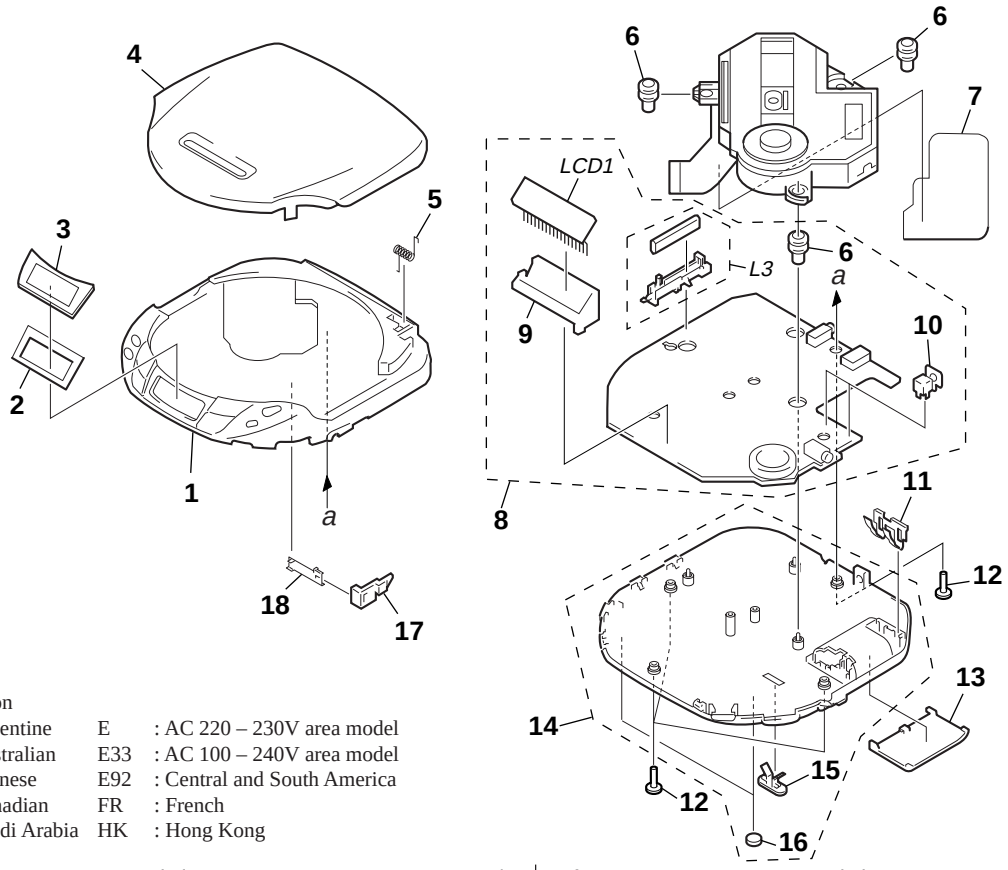
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. CABINET SECTION

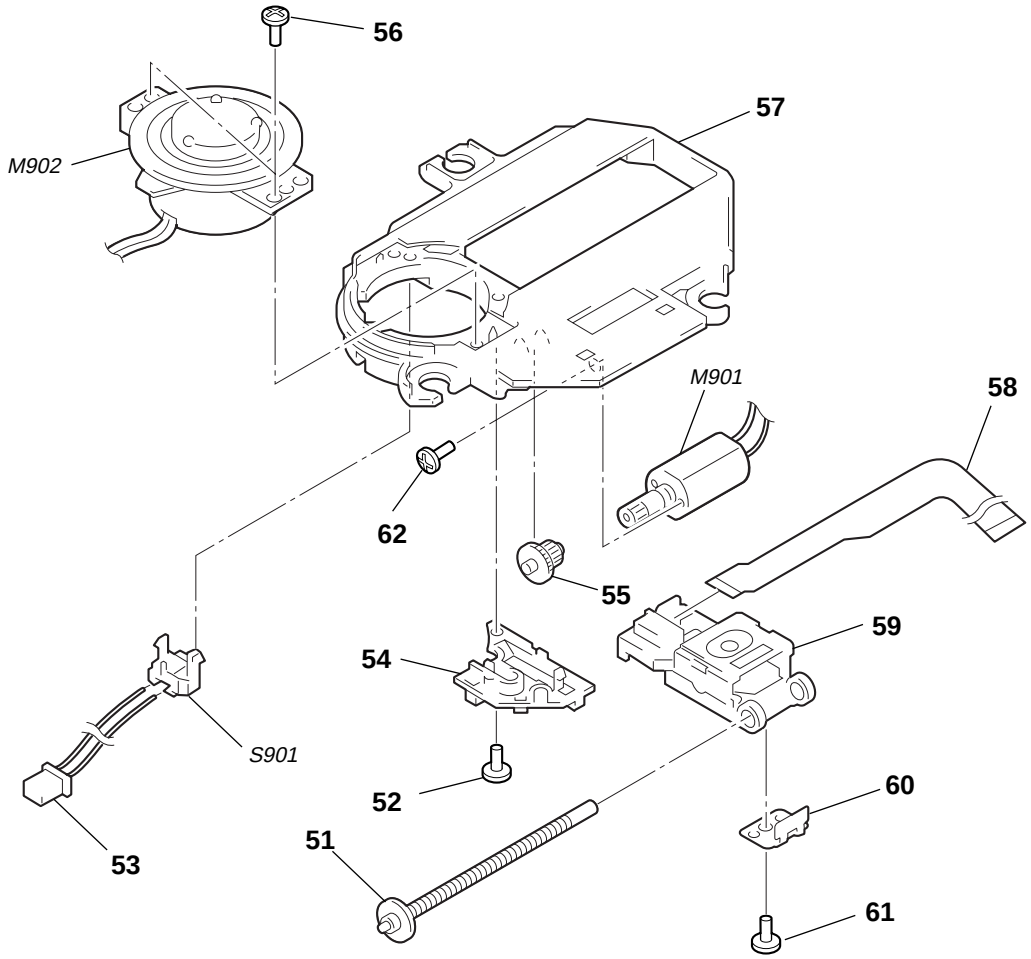


- Abbreviation

AR	: Argentine	E	: AC 220 – 230V area model
AUS	: Australian	E33	: AC 100 – 240V area model
CH	: Chinese	E92	: Central and South America
CND	: Canadian	FR	: French
EA	: Saudi Arabia	HK	: Hong Kong

Ref. No.	Part No.	Description	Remarks
1	X-4949-551-1	CABINET (UPPER) SUB ASSY (F180/F181: AEP, UK, FR, E, E33, EA, AUS)	
1	X-4949-552-1	CABINET (UPPER) SUB ASSY (F181: CND, E92)	
1	X-4949-550-1	CABINET (UPPER) SUB ASSY (F400/F411: AEP, UK, FR, E, E33, EA, CH, AUS/ F415: E, HK, CH, AUS)	
1	X-4949-549-1	CABINET (UPPER) SUB ASSY (F411: US, CND, E92, AR/F415: US, AR)	
2	4-997-121-01	SHEET (LCD WINDOW), ADHESIVE	
3	4-997-119-01	WINDOW (LCD) (F400, F411, F415)	
3	4-997-119-11	WINDOW (LCD) (F180, F181)	
4	X-4949-542-1	LID ASSY, UPPER (F411)	
4	X-4949-543-1	LID ASSY, UPPER (F415)	
4	X-4949-544-1	LID ASSY, UPPER (F181)	
4	X-4950-344-1	LID ASSY, UPPER (F400)	
4	X-4950-213-1	LID ASSY, UPPER (F180)	
5	4-997-122-01	SPRING, TORSION	
6	4-990-219-01	INSULATOR	
7	4-999-370-01	SHEET, COVER	
8	A-3293-956-A	MAIN BOARD, COMPLETE (F180/F181: AEP, UK, EA)	
8	A-3293-958-A	MAIN BOARD, COMPLETE (F181: E, E33, AUS)	
8	A-3293-962-A	MAIN BOARD, COMPLETE (F411: US, CND, E92, AR/F415: US, AR)	
8	A-3293-964-A	MAIN BOARD, COMPLETE (F411: AEP, UK, EA)	
8	A-3293-966-A	MAIN BOARD, COMPLETE (F411: E, E33, CH, AUS/F415: E, HK, CH, AUS)	
8	A-3293-968-A	MAIN BOARD, COMPLETE (F181: CND, E92)	
8	A-3323-003-A	MAIN BOARD, COMPLETE (F181: FR)	
8	A-3323-007-A	MAIN BOARD, COMPLETE (F411: FR)	
8	A-3323-022-A	MAIN BOARD, COMPLETE (F400)	
9	4-997-117-01	HOLDER (LCD)	
10	4-978-695-01	PLATE, TERMINAL, BATTERY	
11	4-978-696-01	TERMINAL BOARD (RELAY), BATTERY	
12	3-336-395-01	SCREW (B2 × 10) (G), TAPPING	
13	4-997-114-01	LID, BATTERY CASE	
14	X-4949-545-1	CABINET (LOWER) SUB ASSY (F400/F411: EXCEPT AEP, UK, FR, EA, F415)	
14	X-4949-546-1	CABINET (LOWER) SUB ASSY (F411: AEP, UK, FR, EA)	
14	X-4949-547-1	CABINET (LOWER) SUB ASSY (F181: CND, E, E33, E92, AUS)	
14	X-4949-548-1	CABINET (LOWER) SUB ASSY (F180/F181: AEP, UK, FR, EA)	
15	4-984-751-01	KNOB (AVLS)	
16	4-966-278-01	FOOT, RUBBER	
17	4-982-218-01	DETECTOR	
18	4-982-219-01	SPRING (DETECTOR)	
L3	X-4949-673-1	HOLDER ASSY, ANTENNA	
LCD1	1-803-018-11	DISPLAY PANEL, LIQUID CRYSTAL	

7-2. OPTICAL PICK-UP SECTION



Ref. No.	Part No.	Description	Remarks
51	A-3303-970-A	SCREW ASSY, FEED	
52	3-318-203-11	SCREW (B1.7 × 6), TAPPING	
53	1-690-530-81	LEAD (WITH CONNECTOR)	
54	4-972-163-04	SPRING, SLED	
55	4-974-003-01	GEAR (B)	
56	3-719-401-11	SCREW (B1.7), TAPPING	
* 57	4-984-320-01	CHASSIS	
58	1-660-965-11	PC BOARD, SLIDE FLEXIBLE	

Ref. No.	Part No.	Description	Remarks
⚠ 59	X-4946-311-1	OPTICAL PICK-UP (DAX-01A)	
60	4-972-165-01	RACK	
61	4-973-631-01	SCREW	
62	7-627-850-17	SCREW,PRECISION +P 1.4 × 2.5	
M901	A-3303-403-A	MOTOR ASSY, SLED	
M902	A-3303-971-A	MOTOR ASSY, TURNTABLE	
S901	1-571-099-21	SWITCH (1 KEY) (LIMIT)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 8
ELECTRICAL PARTS LIST

MAIN

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...
- Abbreviation

AR	: Argentine	E	: AC 220 – 230V area model
AUS	: Australian	E33	: AC 100 – 240V area model
CH	: Chinese	E92	: Central and South America
CND	: Canadian	FR	: French
EA	: Saudi Arabia	HK	: Hong Kong

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
	A-3293-956-A	MAIN BOARD, COMPLETE			
		**********			
					(F180/F181: AEP, UK, EA)
	A-3293-958-A	MAIN BOARD, COMPLETE (F181: E, E33, AUS)			
		**********			
	A-3293-962-A	MAIN BOARD, COMPLETE			
		**********			
					(F411: US, CND, E92, AR/F415: US, AR)
	A-3293-964-A	MAIN BOARD, COMPLETE (F411: AEP, UK, EA)			
		**********			
	A-3293-966-A	MAIN BOARD, COMPLETE			
		**********			
					(F411: E, E33, CH, AUS/F415: E, HK, CH, AUS)
	A-3293-968-A	MAIN BOARD, COMPLETE (F181: CND, E92)			
		**********			
	A-3323-003-A	MAIN BOARD, COMPLETE (F181: FR)			
		**********			
	A-3323-007-A	MAIN BOARD, COMPLETE (F411: FR)			
		**********			
	A-3323-022-A	MAIN BOARD, COMPLETE (F400)			
		**********			
*	3-378-436-01	CUSHION, SARANET			
					(F411: US, CND, E92, AR/F415: US, AR)
	4-978-695-01	PLATE, TERMINAL, BATTERY			
	4-997-117-01	HOLDER (LCD)			
		< CAPACITOR >			
C1	1-163-088-00	CERAMIC CHIP	5PF		50V
					(EXCEPT F400)
C2	1-163-083-00	CERAMIC CHIP	1PF		50V
					(F400)
C2	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
					(EXCEPT F400)
C4	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C5	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
					(F400)
C5	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
					(EXCEPT F400)
C6	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
					(EXCEPT F400)
C6	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
					(F400)
C7	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C8	1-163-127-00	CERAMIC CHIP	270PF	5%	50V

Ref. No.	Part No.	Description			Remarks
C9	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C10	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C11	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
					(F181: CND, E92/F411: US, CND, E92, AR/ F415: US, AR)
C13	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C14	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C15	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C16	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C18	1-163-217-11	CERAMIC CHIP	1PF	0.25PF	50V
C19	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C20	1-104-852-11	TANTAL CHIP	22uF	20%	10V
C21	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C22	1-164-346-11	CERAMIC CHIP	1uF		16V
C23	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
					(F181: CND, E92/F411: US, CND, E92, AR/ F415: US, AR)
C24	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C25	1-104-852-11	TANTAL CHIP	22uF	20%	10V
C26	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C27	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V
C29	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
					(F181: CND, E92/F411: US, CND, E92, AR/ F415: US, AR)
C30	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C31	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C32	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C33	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C34	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C35	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V
C36	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
					(F180/F181: EXCEPT FR/F400/F411: EXCEPT FR/F415)
C37	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C38	1-128-057-11	ELECT	330uF	20%	6.3V
C39	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C40	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C41	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C42	1-163-217-11	CERAMIC CHIP	1PF	0.25PF	50V
C43	1-104-509-11	CERAMIC CHIP	0.018uF	10%	16V
C44	1-104-509-11	CERAMIC CHIP	0.018uF	10%	16V
C45	1-164-346-11	CERAMIC CHIP	1uF		16V
C46	1-164-156-11	CERAMIC CHIP	0.1uF		25V
					(F181: CND, E, E33, E92, AUS)

MAIN

Ref. No.	Part No.	Description			Remarks
C46	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
		(F180/F181: AEP, UK, FR, EA/F400/F411/F415)			
C47	1-164-346-11	CERAMIC CHIP	1uF		16V
C48	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		(F181: CND, E, E33, E92, AUS)			
C48	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
		(F180/F181: AEP, UK, FR, EA/F400/F411/F415)			
C49	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C51	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C52	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C53	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C54	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C55	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C56	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C57	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C58	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C60	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C61	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C62	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C63	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C65	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C66	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C67	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C69	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C70	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C71	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C72	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C73	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C74	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C75	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C76	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C77	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V
C78	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C79	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C80	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C81	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C82	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C83	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C86	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C87	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C88	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C89	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C91	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C92	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C94	1-104-852-11	TANTAL CHIP	22uF	20%	10V
C95	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C97	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C98	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C101	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C102	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C103	1-115-156-11	CERAMIC CHIP	1uF	10V	
C104	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C106	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		(F180/F181: EXCEPT FR, F400/F411: EXCEPT FR/F415)			
C107	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C108	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C201	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C202	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C203	1-115-156-11	CERAMIC CHIP	1uF		10V

Ref. No.	Part No.	Description			Remarks
C204	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C206	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		(F180/F181: EXCEPT FR/F400/F411: EXCEPT FR/F415)			
C207	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C208	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C302	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C303	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C304	1-124-635-00	ELECT	220uF	20%	6.3V
C305	1-126-382-11	ELECT	100uF	20%	4V
C306	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
					(F180/F181)
C307	1-126-795-11	ELECT	10uF	20%	25V
C308	1-126-795-11	ELECT	10uF	20%	25V
C309	1-164-346-11	CERAMIC CHIP	1uF		16V
			(F181: CND, E, E33, E92, AUS/F411: US,CND, E92, AR/F415: US, AR)		
C309	1-164-505-11	CERAMIC CHIP	2.2uF		16V
		(F180/F181:AEP,UK,FR,EA/F400/F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)			
C310	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C311	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C312	1-128-057-11	ELECT	330uF	20%	6.3V
C313	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C314	1-115-156-11	CERAMIC CHIP	1uF		10V
C315	1-124-635-00	ELECT	220uF	20%	6.3V
C316	1-115-156-11	CERAMIC CHIP	1uF		10V
C317	1-115-156-11	CERAMIC CHIP	1uF		10V
C321	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C323	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C324	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C326	1-165-128-11	CERAMIC CHIP	0.22uF	16V	
C327	1-104-852-11	TANTAL CHIP	22uF	20%	10V
C328	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
			(F180/F181: EXCEPT FR/F400/F411: EXCEPT FR/F415)		
C329	1-128-057-11	ELECT	330uF	20%	6.3V
C335	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C401	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
		(F180/F181: AEP, UK, FR, EA/F400/F411/F415)			
C401	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
			(F181: CND, E, E33, E92, AUS/F411: US, CND, E92, AR/F415: US, AR)		
C402	1-126-785-11	ELECT	47uF	20%	10V
C403	1-127-485-00	ELECT	33uF	20%	6.3V
C404	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C405	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C407	1-115-156-11	CERAMIC CHIP	1uF		10V
C408	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C410	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C411	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C415	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C417	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V
C420	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C421	1-124-635-00	ELECT	220uF	20%	6.3V
C424	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C425	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C426	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C427	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V
C428	1-164-346-11	CERAMIC CHIP	1uF		16V
C432	1-115-156-11	CERAMIC CHIP	1uF		10V
C439	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C500	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
					(F400/F411/F415)
C501	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C504	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C505	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C506	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C509	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C510	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C511	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C512	1-115-156-11	CERAMIC CHIP	1uF		10V
C513	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C514	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C515	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C516	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C517	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C518	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C519	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C520	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C521	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C522	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C523	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C525	1-104-908-11	TANTAL CHIP	47uF	20%	4V
C526	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C528	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C531	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C534	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C538	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C539	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C540	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C550	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C555	1-104-908-11	TANTAL CHIP	47uF	20%	4V
C557	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C560	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
					(F400/F411/F415)
C562	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C563	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C571	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V
C572	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C599	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C601	1-164-360-11	CERAMIC CHIP	0.1uF		16V
					(F400/F411/F415)
C602	1-164-360-11	CERAMIC CHIP	0.1uF		16V
					(F400/F411/F415)
C611	1-104-852-11	TANTAL CHIP	22uF	20%	6.3V
C615	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C616	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
					(F400/F411/F415)
C702	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C703	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C704	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C705	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C706	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C707	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C708	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C712	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C715	1-164-346-11	CERAMIC CHIP	1uF		16V
C801	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
			(F400/F411: EXCEPT FR/F415)		
C802	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
					(F400/F411/F415)
C804	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C805	1-115-156-11	CERAMIC CHIP	1uF		10V
C806	1-164-346-11	CERAMIC CHIP	1uF		16V
C807	1-115-156-11	CERAMIC CHIP	1uF		10V
C808	1-115-156-11	CERAMIC CHIP	1uF		10V
					(F180/F181: EXCEPT FR/
					F411: EXCEPT AEP, UK, FR, EA/F415)
C808	1-164-360-11	CERAMIC CHIP	0.1uF		16V
					(F181: FR, F400/F411: AEP, UK, FR, EA)
C809	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
					(F400/F411: EXCEPT FR/F415)
C810	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
					(F400/F411: EXCEPT FR/F415)
C811	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
					(F400/F411: EXCEPT FR/F415)
C812	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
					(F400/F411: EXCEPT FR/F415)
C813	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
					(F400/F411/F415)
C879	1-115-156-11	CERAMIC CHIP	1uF		10V
C901	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C902	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C904	1-164-362-11	CERAMIC CHIP	470PF	5%	50V
C907	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C908	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
					(F181: FR/F411: FR)
		< CERAMIC FILTER >			
CF1	1-577-588-11	FILTER, CERAMIC			
		(F180/F181: EXCEPT FR/F400/F411: EXCEPT FR/F415)			
CF1	1-781-034-11	FILTER, CERAMIC (F181: FR/F411: FR)			
CF2	1-579-823-21	FILTER, CERAMIC			
		< CONNECTOR >			
CN501	1-566-530-11	CONNECTOR, FPC (ZIF) 14P			
CN701	* 1-695-320-51	PIN, CONNECTOR (1.5MM) (SMD) 2P			
CN702	* 1-695-320-31	PIN, CONNECTOR (1.5MM) (SMD) 2P			
CN703	* 1-695-320-21	PIN, CONNECTOR (1.5MM) (SMD) 2P			
		< TRIMMER >			
CT1	1-141-327-11	CAP, CHIP TYPE TRIMMER 10PF			
CT3	1-141-327-11	CAP, CHIP TYPE TRIMMER 10PF			
		< DIODE >			
D1	8-719-053-30	DIODE MA2S357- (TX). SO			
D2	8-719-053-30	DIODE MA2S357- (TX). SO			
D3	8-719-951-05	DIODE KV1560			
D10	8-719-018-85	DIODE 1SS317			
		(F181: CND, E92/F411: US, CND, E92, AR/F415: US, AR)			
D11	8-719-404-49	DIODE MA111			
D12	8-719-056-88	DIODE UDZ-TE-17-11B			
D13	8-719-938-72	DIODE SB01-05CP			
D14	8-719-938-72	DIODE SB01-05CP			
D101	8-719-420-90	DIODE MA8051-M			
D102	8-719-039-99	DIODE UMZ8.2T			
D201	8-719-420-90	DIODE MA8051-M			
D202	8-719-039-99	DIODE UMZ8.2T			
D301	8-719-039-99	DIODE UMZ8.2T			
D302	8-719-420-90	DIODE MA8051-M			
D303	8-719-941-86	DIODE DAN202U			

MAIN

Ref. No.	Part No.	Description	Remarks
D304	8-719-992-02	DIODE RB705D	
D305	8-719-941-86	DIODE DAN202U	
D306	8-719-420-90	DIODE MA8051-M (F181:FR/F411:FR)	
D400	8-719-058-24	DIODE RB501V-40TE-17	
D401	8-719-048-98	DIODE RB160L-40TE25	
D402	8-719-058-24	DIODE RB501V-40TE-17	
D403	8-719-049-10	DIODE 1SS374-TE85L	
D407	8-719-058-24	DIODE RB501V-40TE-17	
D414	8-719-048-98	DIODE RB160L-40TE25	(F180/F181: EXCEPT FR)
D416	8-719-048-98	DIODE RB160L-40TE25	(F181: FRF400/F411/F415)
D502	8-719-058-24	DIODE RB501V-40TE-17 (F400/F411/F415)	
D503	8-719-024-81	DIODE 1SS300-TE85L (F400/F411/F415)	
D800	8-719-058-24	DIODE RB501V-40TE-17 (F400/F411/F415)	
D801	8-719-049-09	DIODE 1SS367-T3SONY (F400/F411/F415)	
D802	8-719-058-24	DIODE RB501V-40TE-17	
D803	8-719-420-90	DIODE MA8051-M	(F400/F411: EXCEPT FR/F415)
D804	8-719-058-24	DIODE RB501V-40TE-17 (F400/F411/F415)	
D806	8-719-420-90	DIODE MA8051-M (F400/F411/F415)	
		< FERRITE BEAD >	
FB11	1-216-864-11	METAL CHIP 0.5% 1/16W	(F180/F181: EXCEPT CND, E92, F400/F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)
FB11	1-500-444-11	FERRITE	(F181: CND, E92/F411: US, CND, E92, AR/F415: US, AR)
FB101	1-500-444-11	FERRITE	
FB102	1-500-444-11	FERRITE	
FB201	1-500-444-11	FERRITE	
FB202	1-500-444-11	FERRITE	
FB301	1-500-444-11	FERRITE	
FB302	1-500-444-11	FERRITE	
FB306	1-500-444-11	FERRITE	
FB401	1-500-451-11	FERRITE	
FB402	1-500-451-11	FERRITE	
FB501	1-500-444-11	FERRITE	
FB502	1-216-864-11	METAL CHIP 0.5% 1/16W	
FB601	1-500-444-11	FERRITE	
FB801	1-500-444-11	FERRITE (F400/F411/F415)	
FB802	1-500-444-11	FERRITE (F400/F411/F415)	
FB803	1-500-444-11	FERRITE (F400/F411: EXCEPT FR/F415)	
FB804	1-500-444-11	FERRITE (F400/F411/F415)	
		< FILTER >	
FL1	1-236-711-21	FILTER, BAND PASS (EXCEPT F400)	
FL1	1-239-507-11	FILTER, BAND PASS (F400)	
		< IC >	
IC1	8-759-548-51	IC uPD17072GB-552-1A7	
IC2	8-759-230-39	IC TA8122AF	
IC3	8-759-293-74	IC NJM2100E	
IC4	8-759-449-23	IC AK93C55AV-L	
IC5	8-759-523-03	IC TC74HC4066AFS-EL	
IC6	8-759-082-60	IC TC7S66FU	
IC7	8-759-493-39	IC RN5RZ33BA-TR	
IC301	8-759-483-60	IC TC9438FNEL	
IC302	8-759-522-87	IC TA2120FN (EL)	
IC303	8-759-523-03	IC TC74HC4066AFS-EL	
IC304	8-759-082-60	IC TC7S66FU	
IC401	8-759-483-61	IC MPC18A26VMEL	
IC501	8-759-432-83	IC BA6386K	
IC502	8-759-484-38	IC BU9325KS	
IC503	8-759-387-31	IC TC75S55F (TE85R)	
IC505	8-759-082-60	IC TC7S66FU	
IC601	8-759-484-37	IC SM5902AF (F400/F411/F415)	
IC602	8-759-498-44	IC MSM51V4400D-70TSK (F400/F411/F415)	
IC701	8-759-483-62	IC MPC17A51VMEL	
IC801	8-759-525-44	IC MC68HC05L24SC440454CFU	(F180/F181: EXCEPT FR/F411: EXCEPT AEP, UK, FR, EA/F415)
IC801	8-759-525-45	IC MC68HC05L24SC440455CFU	(F400/F411: AEP, UK, EA)
IC801	8-759-525-46	IC MC68HC05L24SC440456CFU	(F181: FR/F411: FR)
		< JACK >	
J301	1-778-696-11	JACK (LINE OUT)	
J302	1-580-680-11	JACK (🎧 /REMOTE) (F400/F411/F415)	
J302	1-774-804-11	JACK (🎧) (F180/F181)	
J401	1-778-153-21	JACK, DC (POLARITY UNIFIED TYPE)	
		< JUMPER RESISTOR >	
JW501	1-216-295-91	SHORT 0	
JW502	1-216-295-91	SHORT 0	
		< COIL >	
L1	1-416-547-11	COIL (WITH CORE) (EXCEPT F400)	
L1	1-416-550-11	COIL (WITH CORE) (F400)	
L2	1-416-548-11	COIL (WITH CORE) (EXCEPT F400)	
L2	1-416-551-11	COIL (WITH CORE) (F400)	
L3	X-4949-673-1	HOLDER ASSY, ANTENNA	
L4	1-411-989-11	COIL (WITH CORE) (AM OSC)	
L9	1-412-010-41	INDUCTOR CHIP 22uH	
L11	1-414-410-21	INDUCTOR 10uH	
L12	1-412-006-31	INDUCTOR CHIP 10uH	
L14	1-412-032-11	INDUCTOR CHIP 100uH	
L15	1-414-410-21	INDUCTOR 10uH	
L301	1-469-034-11	INDUCTOR 4.7uH	
L302	1-469-034-11	INDUCTOR 4.7uH	
L303	1-469-034-11	INDUCTOR 4.7uH	
L304	1-469-034-11	INDUCTOR 4.7uH	
L306	1-216-295-91	SHORT 0	
L401	1-414-410-21	INDUCTOR 10uH	
L402	1-414-404-11	INDUCTOR 100uH	
L403	1-414-404-11	INDUCTOR 100uH	
L501	1-469-034-11	INDUCTOR 4.7uH	
L502	1-414-410-21	INDUCTOR 10uH	
L504	1-414-410-21	INDUCTOR 10uH	
L506	1-414-402-11	INDUCTOR 47uH	
L507	1-414-410-21	INDUCTOR 10uH	
L701	1-414-402-11	INDUCTOR 47uH	
L702	1-414-402-11	INDUCTOR 47uH	
L800	1-469-034-11	INDUCTOR 4.7uH	
		< LIQUID CRYSTAL DISPLAY >	
LCD1	1-803-018-11	DISPLAY PANEL, LIQUID CRYSTAL	

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	
Q11	8-729-102-07	TRANSISTOR 2SC2223-F13	
		(F181: CND, E92/F411: US, CND, E92, AR/ F415: US, AR)	
Q12	8-729-423-52	TRANSISTOR 2SC3931-C	
Q13	8-729-028-74	TRANSISTOR DTA114TUA-T106	
		(F180/F181: EXCEPT CND, E92/F400/ F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)	
Q14	8-729-028-99	TRANSISTOR DTC114YUA-T106	
		(F180/F181: EXCEPT CND, E92/F400/ F411: EXCEPT US, CND, E92, AR/ F415: EXCEPT US, AR)	
Q15	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q16	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q18	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR	
Q19	8-729-800-71	TRANSISTOR 2SB815B7-TB	
Q20	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q21	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q22	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q25	8-729-423-52	TRANSISTOR 2SC3931-C	
Q26	8-729-231-96	TRANSISTOR 2SK880GR-TE85L	
Q27	8-729-231-96	TRANSISTOR 2SK880GR-TE85L	
Q28	8-729-602-21	TRANSISTOR 2SC4154-F	
Q29	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q30	8-729-800-37	TRANSISTOR 2SD1048-X7	
Q31	8-729-800-71	TRANSISTOR 2SB815B7-TB	
Q32	8-729-400-55	TRANSISTOR 2SD1328-S	
Q33	8-729-903-10	TRANSISTOR FMW1	
Q38	8-729-045-50	TRANSISTOR UMB10N-TN	
		(F181: FR/F411: AEP, UK, FR, EA)	
Q38	8-729-929-85	TRANSISTOR UMB4-TN	
		(F180/F181: EXCEPT FR/ F400/F411: EXCEPT AEP, UK, FR, EA/F415)	
Q38	8-759-045-50	IC UPD75512GF-113-3B9 (F400)	
Q40	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q41	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q42	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q43	8-729-423-52	TRANSISTOR 2SC3931-C	
Q44	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		(F181: FR/F411: FR)	
Q44	8-729-423-52	TRANSISTOR 2SC3931-C	
		(F180/F181: EXCEPT FR/F400/ F411: EXCEPT FR/F415)	
Q45	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q47	8-729-028-99	TRANSISTOR DTC114YUA-T106	
Q48	8-729-231-74	TRANSISTOR 2SC4116-GL	
Q49	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q50	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q51	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR	
Q101	8-729-209-06	TRANSISTOR 2SC4213-A	
Q201	8-729-209-06	TRANSISTOR 2SC4213-A	
Q300	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q301	8-729-029-06	TRANSISTOR DTC124EUA-T106	
Q302	8-729-907-39	TRANSISTOR IMD2	
Q311	8-729-028-92	TRANSISTOR DTA144TUA-T106	
Q401	8-729-044-09	TRANSISTOR 2SD2153T100V	
Q402	8-729-044-10	TRANSISTOR MMBF0201NLT1	
Q404	8-729-921-93	TRANSISTOR 2SB1182F5-QR	
Q405	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q406	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q407	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q500	8-729-029-06	TRANSISTOR DTC124EUA-T106	
		(F400/F411/F415)	
Q501	8-729-216-22	TRANSISTOR 2SA1162-G	
Q506	8-729-029-06	TRANSISTOR DTC124EUA-T106	
		(F400/F411/F415)	
Q507	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q508	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q801	8-729-231-74	TRANSISTOR 2SC4116-GL (F400/F411/F415)	
Q802	8-729-231-74	TRANSISTOR 2SC4116-GL	
Q809	8-729-231-74	TRANSISTOR 2SC4116-GL	
		< RESISTOR >	
R1	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R3	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R4	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R5	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R6	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R7	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R8	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
		(EXCEPT F400)	
R9	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R10	1-216-296-91	SHORT 0	
R11	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R12	1-216-833-11	METAL CHIP 10K 5% 1/16W	
		(F180/F181: AEP, UK, FR, EA/F400/ F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)	
R12	1-216-853-11	METAL CHIP 470K 5% 1/16W	
		(F181: CND, E, E33, E92, AUS/ F411: US, CND, E, E33, E92, CH, AR, AUS/F415)	
R13	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R14	1-216-833-11	METAL CHIP 10K 5% 1/16W	
		(F180/F181: AEP, UK, FR, EA/F400/ F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)	
R14	1-216-853-11	METAL CHIP 470K 5% 1/16W	
		(F181: CND, E, E33, E92, AUS/ F411: US, CND, E, E33, E92, CH, AR, AUS/F415)	
R15	1-216-864-11	METAL CHIP 0 5% 1/16W	
		(F180/F181: EXCEPT CND, E92/F400/ F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)	
R16	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
		(F181: CND, E92/F411:US, CND, E92, AR/ F415: US, AR)	
R17	1-216-842-11	METAL CHIP 56K 5% 1/16W	
		(F181: CND, E92/F411: US, CND, E92, AR/ F415: US, AR)	
R18	1-216-819-11	METAL CHIP 680 5% 1/16W	
		(F181: CND, E92/F411: US, CND, E92, AR/ F415: US, AR)	
R19	1-216-813-11	METAL CHIP 220 5% 1/16W	
R20	1-216-001-00	METAL CHIP 10 5% 1/10W	
R21	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R22	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R23	1-216-864-11	METAL CHIP 0 5% 1/16W	
		(F181: FR/F411: FR)	

MAIN

Ref. No.	Part No.	Description			Remarks
R24	1-216-839-11	METAL CHIP	33K	5%	1/16W (F400)
R24	1-216-841-11	METAL CHIP	47K	5%	1/16W (EXCEPT F400)
R25	1-216-803-11	METAL CHIP	33	5%	1/16W (F181: CND, E92)
R25	1-216-809-11	METAL CHIP	100	5%	1/16W (F180/F181: EXCEPT CND, E92/F400/F411/F415)
R26	1-216-827-11	METAL CHIP	3.3K	5%	1/16W (F400)
R26	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (EXCEPT F400)
R28	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R29	1-216-837-11	METAL CHIP	22K	5%	1/16W
R30	1-216-833-11	METAL CHIP	10K	5%	1/16W
R31	1-216-833-11	METAL CHIP	10K	5%	1/16W
R32	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R34	1-216-833-11	METAL CHIP	10K	5%	1/16W
R35	1-216-833-11	METAL CHIP	10K	5%	1/16W
R36	1-216-833-11	METAL CHIP	10K	5%	1/16W
R37	1-216-849-11	METAL CHIP	220K	5%	1/16W
R38	1-216-813-11	METAL CHIP	220	5%	1/16W
R39	1-216-845-11	METAL CHIP	100K	5%	1/16W
R40	1-216-845-11	METAL CHIP	100K	5%	1/16W
R41	1-216-833-11	METAL CHIP	10K	5%	1/16W
R42	1-216-833-11	METAL CHIP	10K	5%	1/16W
R43	1-216-845-11	METAL CHIP	100K	5%	1/16W
R44	1-216-845-11	METAL CHIP	100K	5%	1/16W
R45	1-216-847-11	METAL CHIP	150K	5%	1/16W
R46	1-216-847-11	METAL CHIP	150K	5%	1/16W
R47	1-216-845-11	METAL CHIP	100K	5%	1/16W
R48	1-216-845-11	METAL CHIP	100K	5%	1/16W
R49	1-216-833-11	METAL CHIP	10K	5%	1/16W
R50	1-216-833-11	METAL CHIP	10K	5%	1/16W
R51	1-216-841-11	METAL CHIP	47K	5%	1/16W
R52	1-216-821-11	METAL CHIP	1K	5%	1/16W
R53	1-216-845-11	METAL CHIP	100K	5%	1/16W
R54	1-216-797-11	METAL CHIP	10	5%	1/16W
R55	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R56	1-216-801-11	METAL CHIP	22	5%	1/16W
R58	1-216-845-11	METAL CHIP	100K	5%	1/16W
R59	1-216-803-11	METAL CHIP	33	5%	1/16W (EXCEPT F400)
R59	1-216-807-11	METAL CHIP	68	5%	1/16W (F400)
R61	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R62	1-216-837-11	METAL CHIP	22K	5%	1/16W
R63	1-216-833-11	METAL CHIP	10K	5%	1/16W
R64	1-216-845-11	METAL CHIP	100K	5%	1/16W (F180/F181: EXCEPT FR/F400/ F411: EXCEPT FR/F415)
R65	1-216-845-11	METAL CHIP	100K	5%	1/16W
R67	1-216-864-11	METAL CHIP	0	5%	1/16W (F180/F181: AEP, UK, FR, EA/ F411: AEP, UK, FR, EA)
R69	1-216-845-11	METAL CHIP	100K	5%	1/16W
R70	1-216-857-11	METAL CHIP	1M	5%	1/16W
R71	1-216-833-11	METAL CHIP	10K	5%	1/16W
R72	1-216-821-11	METAL CHIP	1K	5%	1/16W
R73	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R74	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R75	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R76	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R77	1-216-833-11	METAL CHIP	10K	5%	1/16W
R78	1-216-838-11	METAL CHIP	27K	5%	1/16W
R80	1-216-853-11	METAL CHIP	470K	5%	1/16W
R81	1-216-821-11	METAL CHIP	1K	5%	1/16W (F181: FR, F400/F411: FR)
R81	1-216-837-11	METAL CHIP	22K	5%	1/16W (F180/F181: EXCEPT FR/ F411: EXCEPT AEP, UK, FR, EA/F415)
R82	1-216-833-11	METAL CHIP	10K	5%	1/16W
R83	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R84	1-216-821-11	METAL CHIP	1K	5%	1/16W
R85	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R86	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R87	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R88	1-216-817-11	METAL CHIP	470	5%	1/16W
R89	1-216-810-11	METAL CHIP	120	5%	1/16W
R90	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R91	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R92	1-216-837-11	METAL CHIP	22K	5%	1/16W
R93	1-216-849-11	METAL CHIP	220K	5%	1/16W
R94	1-216-821-11	METAL CHIP	1K	5%	1/16W (F181: FR/F411: FR)
R94	1-216-825-11	METAL CHIP	2.2K	5%	1/16W (F180/F181: EXCEPT FR/F400/ F411: EXCEPT FR/F415)
R95	1-216-797-11	METAL CHIP	10	5%	1/16W
R96	1-216-841-11	METAL CHIP	47K	5%	1/16W
R97	1-216-821-11	METAL CHIP	1K	5%	1/16W
R98	1-216-803-11	METAL CHIP	33	5%	1/16W (F181:FR/F411:FR)
R98	1-216-807-11	METAL CHIP	68	5%	1/16W (F180/F181: EXCEPT FR/F400/ F411: EXCEPT FR/F415)
R99	1-216-853-11	METAL CHIP	470K	5%	1/16W
R100	1-216-837-11	METAL CHIP	22K	5%	1/16W
R101	1-216-813-11	METAL CHIP	220	5%	1/16W
R102	1-216-845-11	METAL CHIP	100K	5%	1/16W
R103	1-216-841-11	METAL CHIP	47K	5%	1/16W (F180/F181: EXCEPT FR/F400/ F411: EXCEPT FR/F415)
R103	1-216-848-11	METAL CHIP	180K	5%	1/16W (F181: FR/F411: FR)
R105	1-216-821-11	METAL CHIP	1K	5%	1/16W
R107	1-216-793-11	RES,CHIP	4.7	5%	1/16W
R201	1-216-813-11	METAL CHIP	220	5%	1/16W
R202	1-216-845-11	METAL CHIP	100K	5%	1/16W
R203	1-216-841-11	METAL CHIP	47K	5%	1/16W (F180/F181: EXCEPT FR/F400/ F411: EXCEPT FR/F415)
R203	1-216-848-11	METAL CHIP	180K	5%	1/16W (F181: FR/F411: FR)
R205	1-216-821-11	METAL CHIP	1K	5%	1/16W
R207	1-216-793-11	RES,CHIP	4.7	5%	1/16W
R301	1-216-296-91	SHORT	0		
R302	1-216-864-11	METAL CHIP	0	5%	1/16W
R303	1-216-797-11	METAL CHIP	10	5%	1/16W
R304	1-216-803-11	METAL CHIP	33	5%	1/16W
R305	1-216-296-91	SHORT	0		
R306	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R307	1-216-864-11	METAL CHIP	0	5%	1/16W
R308	1-216-864-11	METAL CHIP	0	5%	1/16W
R310	1-216-142-00	RES,CHIP	4.7	5%	1/8W
R311	1-216-845-11	METAL CHIP	100K	5%	1/16W
R312	1-216-815-11	METAL CHIP	330	5%	1/16W
R313	1-216-857-11	METAL CHIP	1M	5%	1/16W
R314	1-216-813-11	METAL CHIP	220	5%	1/16W
			(F181:CND,E,E33,E92,AUS)		
R314	1-216-864-11	METAL CHIP	0	5%	1/16W
			(F180/F181: AEP, UK, FR, EA/F400/		
			F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)		
R316	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
			(F180/F181: AEP, UK, FR, EA/F400/F411/F415)		
R316	1-216-833-11	METAL CHIP	10K	5%	1/16W
			(F181: CND, E, E33, E92, AUS/		
			F411: US, CND, E92, AR/F415: US, AR)		
R317	1-216-845-11	METAL CHIP	100K	5%	1/16W
R318	1-216-864-11	METAL CHIP	0	5%	1/16W
R319	1-216-296-91	SHORT	0		
R326	1-216-839-11	METAL CHIP	33K	5%	1/16W
R400	1-216-296-91	SHORT	0		
R401	1-218-911-11	RES, CHIP	470K	0.50%	1/16W
R402	1-218-899-11	RES,CHIP	150K	0.50%	1/16W
R403	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R404	1-216-799-11	METAL CHIP	15	5%	1/16W
R405	1-216-864-11	METAL CHIP	0	5%	1/16W
R406	1-216-304-11	METAL CHIP	3.3	5%	1/10W
R408	1-216-809-11	METAL CHIP	100	5%	1/16W
R409	1-216-837-11	METAL CHIP	22K	5%	1/16W
R410	1-216-857-11	METAL CHIP	1M	5%	1/16W
R413	1-216-841-11	METAL CHIP	47K	5%	1/16W
			(F180/F181: EXCEPT FR/F400/		
			F411: EXCEPT FR/F415)		
R413	1-216-845-11	METAL CHIP	100K	5%	1/16W
				(F181: FR/F411: FR)	
R414	1-216-857-11	METAL CHIP	1M	5%	1/16W
R415	1-216-815-11	METAL CHIP	330	5%	1/16W
R416	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R417	1-216-302-00	METAL CHIP	2.7	5%	1/10W
R418	1-216-864-11	METAL CHIP	0	5%	1/16W
R419	1-216-849-11	METAL CHIP	220K	5%	1/16W
R421	1-216-833-11	METAL CHIP	10K	5%	1/16W
R425	1-216-864-11	METAL CHIP	0	5%	1/16W
R426	1-216-857-11	METAL CHIP	1M	5%	1/16W
R427	1-216-845-11	METAL CHIP	100K	5%	1/16W
				(F181: FR/F411: FR)	
R428	1-216-864-11	METAL CHIP	0	5%	1/16W
				(F181: FR/F411: FR)	
R429	1-218-915-11	RES,CHIP	680K	0.50%	1/16W
R430	1-218-907-11	RES,CHIP	330K	0.50%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W
				(F181: FR/F411: FR)	
R433	1-216-857-11	METAL CHIP	1M	5%	1/16W
R500	1-216-821-11	METAL CHIP	1K	5%	1/16W
R501	1-216-821-11	METAL CHIP	1K	5%	1/16W
R502	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R503	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R504	1-216-838-11	METAL CHIP	27K	5%	1/16W
R505	1-216-142-00	RES,CHIP	4.7	5%	1/8W
R506	1-216-833-11	METAL CHIP	10K	5%	1/16W
R507	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R508	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R509	1-216-836-11	METAL CHIP	18K	5%	1/16W
R510	1-216-821-11	METAL CHIP	1K	5%	1/16W
R511	1-216-833-11	METAL CHIP	10K	5%	1/16W
R512	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R513	1-216-821-11	METAL CHIP	1K	5%	1/16W
				(F180/F181: EXCEPT FR/	
			F411: EXCEPT AEP, UK, FR, EA/F415)		
R513	1-216-864-11	METAL CHIP	0	5%	1/16W
			(F181: FR, F400/F411: AEP, UK, FR, EA)		
R517	1-216-835-11	METAL CHIP	15K	5%	1/16W
R518	1-216-821-11	METAL CHIP	1K	5%	1/16W
R519	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R521	1-216-835-11	METAL CHIP	15K	5%	1/16W
R522	1-216-853-11	METAL CHIP	470K	5%	1/16W
R523	1-216-848-11	METAL CHIP	180K	5%	1/16W
R525	1-216-821-11	METAL CHIP	1K	5%	1/16W
R526	1-216-821-11	METAL CHIP	1K	5%	1/16W
R528	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R529	1-216-864-11	METAL CHIP	0	5%	1/16W
R530	1-216-864-11	METAL CHIP	0	5%	1/16W
R531	1-216-833-11	METAL CHIP	10K	5%	1/16W
R532	1-218-877-11	RES,CHIP	18K	0.50%	1/16W
R533	1-216-841-11	METAL CHIP	47K	5%	1/16W
R534	1-216-837-11	METAL CHIP	22K	5%	1/16W
				(F400/F411/F415)	
R535	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R536	1-216-821-11	METAL CHIP	1K	5%	1/16W
R538	1-216-833-11	METAL CHIP	10K	5%	1/16W
				(F400/F411/F415)	
R539	1-216-864-11	METAL CHIP	0	5%	1/16W
				(F400/F411/F415)	
R540	1-216-864-11	METAL CHIP	0	5%	1/16W
R541	1-216-864-11	METAL CHIP	0	5%	1/16W
				(F400/F411/F415)	
R542	1-216-864-11	METAL CHIP	0	5%	1/16W
R543	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R545	1-216-849-11	METAL CHIP	220K	5%	1/16W
R546	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R549	1-216-833-11	METAL CHIP	10K	5%	1/16W
R550	1-216-864-11	METAL CHIP	0	5%	1/16W
R551	1-216-864-11	METAL CHIP	0	5%	1/16W
					(F180/F181)
R552	1-216-864-11	METAL CHIP	0	5%	1/16W
					(F180/F181)
R553	1-216-864-11	METAL CHIP	0	5%	1/16W
					(F180/F181)
R557	1-216-864-11	METAL CHIP	0	5%	1/16W
R558	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R563	1-216-845-11	METAL CHIP	100K	5%	1/16W
R569	1-216-841-11	METAL CHIP	47K	5%	1/16W
R570	1-218-887-11	RES,CHIP	47K	0.50%	1/16W
R599	1-216-853-11	METAL CHIP	470K	5%	1/16W
R600	1-216-864-11	METAL CHIP	0	5%	1/16W
				(F400/F411/F415)	
R601	1-216-864-11	METAL CHIP	0	5%	1/16W
				(F400/F411/F415)	
R602	1-216-833-11	METAL CHIP	10K	5%	1/16W
				(F400/F411/F415)	

MAIN

Ref. No.	Part No.	Description				Remarks
R603	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F400/F411/F415)
R605	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F400/F411/F415)
R606	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F400/F411/F415)
R607	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F400/F411/F415)
R608	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F400/F411/F415)
R610	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F400/F411/F415)
R611	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F400/F411/F415)
R701	1-216-864-11	METAL CHIP	0	5%	1/16W	
R702	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R800	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R801	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F400/F411: EXCEPT FR/F415)
R802	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R803	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R804	1-216-854-11	METAL CHIP	560K	5%	1/16W	
						(F400/F411/F415)
R805	1-216-861-11	METAL CHIP	2.2M	5%	1/16W	
						(F400/F411/F415)
R806	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R807	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R808	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R809	1-216-851-11	METAL CHIP	330K	5%	1/16W	
						(F400/F411/F415)
R810	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R811	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R812	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R813	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R815	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R816	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R818	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R819	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F400/F411/F415)
R820	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R821	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F400)
R822	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F181: CND, E, E33, E92,AUS/
						F411: US, CND, E, E33, E92, CH, AR, AUS/F415)
R823	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F180/F181: EXCEPT FR/F400/F411: EXCEPT FR/F415)
R823	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F181: FR/F411: FR)
R824	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R825	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F400/F411/F415)
R826	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F400/F411/F415)
R827	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R828	1-216-833-11	METAL CHIP	10K	5%	1/16W	
						(F400/F411/F415)
R829	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F180/F181)
R902	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F180/F181: EXCEPT CND, E92/F400/
						F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)
R903	1-216-864-11	METAL CHIP	0	5%	1/16W	
						(F180/F181: EXCEPT CND, E92/F400/
						F411: EXCEPT US, CND, E92, AR/F415: EXCEPT US, AR)
R904	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R906	1-216-821-11	METAL CHIP	1K	5%	1/16W	
						(F181: FR/F411: FR)
R907	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
						(F181: FR/F411: FR)
		< VARIABLE RESISTOR >				
RV301	1-223-609-21	RES, VAR, CARBON 10K/10K (VOLUME)				
RV502	1-223-587-11	RES, ADJ, CARBON 22K				
RV503	1-223-587-11	RES, ADJ, CARBON 22K				
		< SWITCH >				
S10	1-692-014-11	SWITCH, KEY BOARD (RADIO/BAND)				
S11	1-692-014-11	SWITCH, KEY BOARD (▷II)				
S12	1-692-014-11	SWITCH, KEY BOARD (□/RADIO OFF)				
S13	1-554-088-00	SWITCH, KEY BOARD (SOUND)				
S14	1-692-014-11	SWITCH, KEY BOARD (▷▷I)				
S15	1-692-014-11	SWITCH, KEY BOARD (I◁◁)				
S16	1-692-014-11	SWITCH, KEY BOARD				
						(TUNING –, REPEAT/ENTER)
S17	1-692-014-11	SWITCH, KEY BOARD (TUNING +, PLAY MODE)				
S18	1-554-088-00	SWITCH, KEY BOARD (MEMORY/ESP)				
S19	1-572-922-11	SWITCH, SLIDE (9k/10k)				
						(F181: CND, E, E33, E92, AUS/F400/
						F411: US, CND, E, E33, E92, CH, AR, AUS/F415)
S20	1-572-922-11	SWITCH, SLIDE (DX/LOCAL, STEREO/MONO)				
S301	1-572-922-11	SWITCH, SLIDE (AVLS)				
S801	1-762-822-11	SWITCH, PUSH (1 KEY) (OPEN)				
S802	1-762-455-21	SWITCH, PUSH (1 KEY) (RECHG BATT DET)				
S803	1-572-922-11	SWITCH, SLIDE (RESUME)				
S804	1-572-922-11	SWITCH, SLIDE (HOLD)				
T1	1-411-603-11	COIL (AM-MIX)				
T81	1-431-243-11	TRANSFORMER, DC-DC CONVERTER				
T401	1-475-573-11	TRANSFORMER, DC-DC CONVERTER				
X1	1-767-788-11	FILTER, CERAMIC				
X2	1-577-091-11	OSCILLATOR, CRYSTAL 19kHz				
						(F181: CND, E, E33, E92, AUS)
X2	1-767-787-11	VIBRATOR, CRYSTAL 19kHz				
						(F180/F181: AEP, UK, FR, EA/F400/F411/F415)
X3	1-760-423-11	VIBRATOR, CRYSTAL 75kHz				
X301	1-760-307-11	VIBRATOR, CERAMIC 16.9MHz				
X801	1-577-101-11	VIBRATOR, CERAMIC 4.1943MHz				

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS	
		**********	
53	1-690-530-81	LEAD (WITH CONNECTOR)	
58	1-660-965-11	PC BOARD, SLIDE FLEXIBLE	
⚠59	X-4946-311-1	OPTICAL PICK-UP (DAX-01A)	
M901	A-3303-403-A	MOTOR ASSY, SLED	
M902	A-3303-971-A	MOTOR ASSY, TURNTABLE	
S901	1-571-099-21	SWITCH (1 KEY)(LIMIT)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-467-007-21	ADAPTOR, AC (AC-E455) (AUS)	
⚠	1-467-009-21	ADAPTOR, AC (AC-E455) (US, CND)	
⚠	1-467-012-11	ADAPTOR, AC (AC-E455) (EA)	
⚠	1-467-195-11	ADAPTOR, AC (AC-E455A) (US, CND, E92)	
⚠	1-467-550-11	ADAPTOR, AC (AC-E455A) (E33, Tourist)	
⚠	1-473-115-11	ADAPTOR, AC (AC-E455D) (UK)	
⚠	1-473-116-31	ADAPTOR, AC (AC-E455D) (AEP, FR, E, AR)	
	1-475-603-21	REMOTE CONTROL UNIT (F400/F415)	
⚠	1-475-622-11	ADAPTOR, AC (AC-E455) (CH)	
⚠	1-475-623-11	ADAPTOR, AC (AC-E455) (HK)	
	1-528-444-11	BATTERY PACK (BP-DM10)	(F415: E, HK, CH, AUS)
	1-528-444-31	BATTERY PACK (BP-DM10) (F415: US)	
	1-528-444-81	BATTERY PACK (BP-DM10) (F400/F415: AR)	
	1-559-906-32	CORD, CONNECTION	(F180, F181/F411: EXCEPT AEP, UK/F415: US)
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (E33, Tourist)	
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P (E, EA)	
	3-862-892-11	MANUAL, INSTRUCTION (SPANISH)	(F181: AEP)
	3-862-892-21	MANUAL, INSTRUCTION (ENGLISH)	(F180/F181: AEP, UK, FR, EA)
	3-862-892-31	MANUAL, INSTRUCTION (FRENCH)	(F181: AEP, FR)
	3-862-892-41	MANUAL, INSTRUCTION (DUTCH) (F181: AEP)	
	3-862-892-51	MANUAL, INSTRUCTION (SWEDISH)	(F181: AEP)
	3-862-892-61	MANUAL, INSTRUCTION (PORTUGUESE)	(F181: AEP)
	3-862-892-71	MANUAL, INSTRUCTION (GERMAN)	(F181: AEP)
	3-862-892-81	MANUAL, INSTRUCTION (ITALIAN) (F181: AEP)	
	3-862-892-91	MANUAL, INSTRUCTION (DANISH) (F181: AEP)	
	3-862-893-11	MANUAL, INSTRUCTION (CHINESE) (F181: E)	
	3-862-893-21	MANUAL, INSTRUCTION (ENGLISH) (F181: E)	
	3-862-894-11	MANUAL, INSTRUCTION (SPANISH)	(F181: E33, E92)
	3-862-894-21	MANUAL, INSTRUCTION (ENGLISH)	(F181: CND, E33, E92, AUS)
	3-862-894-31	MANUAL, INSTRUCTION (FRENCH)	(F181: CND)
	3-862-894-41	MANUAL, INSTRUCTION (POTUGUESE)	(F181: E92)
	3-862-895-11	MANUAL, INSTRUCTION (SPANISH)	(F411: AEP)
	3-862-895-21	MANUAL, INSTRUCTION (ENGLISH)	(F411: AEP, UK, FR, EA)
	3-862-895-31	MANUAL, INSTRUCTION (FRENCH)	(F411: AEP, FR)
	3-862-895-41	MANUAL, INSTRUCTION (DUTCH) (F411: AEP)	
	3-862-895-51	MANUAL, INSTRUCTION (SWEDISH)	(F411: AEP)
	3-862-895-61	MANUAL, INSTRUCTION (PORTUGUESE)	(F411: AEP)
	3-862-895-71	MANUAL, INSTRUCTION (GERMAN)	(F411: AEP)
	3-862-895-81	MANUAL, INSTRUCTION (ITALIAN) (F411: AEP)	
	3-862-895-91	MANUAL, INSTRUCTION (DANISH) (F411: AEP)	
	3-862-896-11	MANUAL, INSTRUCTION (CHINESE)	(F411: E, CH/F415: E, HK, CH)
	3-862-896-21	MANUAL, INSTRUCTION (ENGLISH)	(F411: E, CH/F415: E, HK, CH)
	3-862-897-01	MANUAL, INSTRUCTION (JAPANESE) (F400)	
	3-862-897-11	MANUAL, INSTRUCTION (SPANISH)	(F400/F411: E33, E92, AR/F415: AR)
	3-862-897-21	MANUAL, INSTRUCTION (ENGLISH)	(F400/F411: US, CND, E33, E92, AR, AUS/ F415: US, AR, AUS)
	3-862-897-31	MANUAL, INSTRUCTION (FRENCH)	(F400/F411: CND)
	3-862-897-41	MANUAL, INSTRUCTION (PORTUGUESE)	(F411: E92, AR/F415: AR)
	8-953-187-90	HEADPHONE MDR-ED136//K SET	(F180/F181/F411: CND, AEP, AEP1, UK, FR, E, E33, E92, EA, CH, AR, AUS)
	8-953-272-90	HEADPHONE MDR-ED136SP//K SET	(F400/F415: E, HK, CH, AR, AUS)
	8-953-276-90	HEADPHONE MDR-24SP SET (F415: US)	
	8-953-342-93	HEADPHONE MDR-24/K1 SET(F411: US)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

9-924-938-11

Sony Corporation
Personal A&V Products Company

98F1691-1
Printed in Japan ©1998.6
Published by Quality Engineering Dept.
(Shibaura)

D-F180AN/F181/F400/F411/F415

SONY

SERVICE MANUAL

1999. 01

US Model
D-F411/F415

Canadian Model
D-F181/F411

AEP Model
D-F180AN/F181/F411/F415

UK Model
D-F181/F411

E Model

Australian Model
D-F181/F411/F415

Chinese Model
D-F411/F415

Tourist Model
D-F400

SUPPLEMENT-2

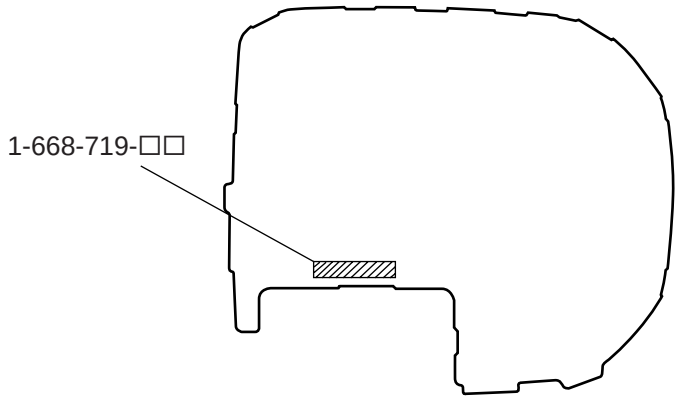
File this supplement with the Service Manual.

Subject : Printed wiring board suffix change
MAIN board -11 → -21

- **Target models**
  - **D-F181 (Canadian, E92 models)**
  - **D-F411 (US, Canadian, E92, Argentina models)**
  - **D-F415 (US, Argentina models)**

This service manual supplement-2 shows the schematic diagram and printed wiring board of with suffix-21.
For the schematic diagram and printed wiring board of the former type with suffix-11, refer to the already issued service manual (9-924-938-11) and supplement-1 (9-924-938-81)
Use the printed wiring board code number that is printed on the printed wiring board to find the suffix either-11 or-21 as shown below.

MAIN BOARD (CONDUCTOR SIDE)



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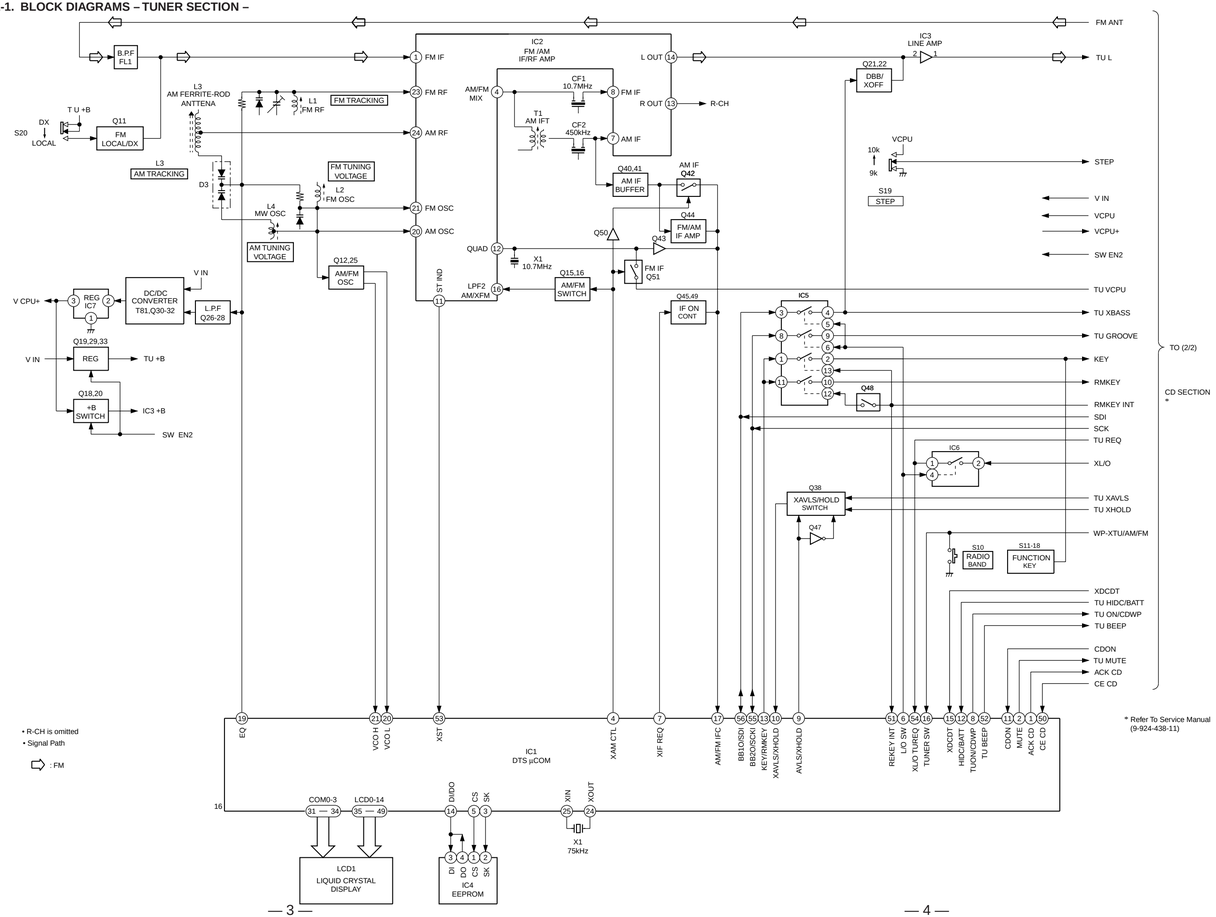
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

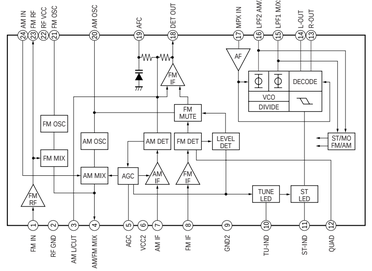
LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

1-1. BLOCK DIAGRAMS – TUNER SECTION –



1-2. IC BLOCK DIAGRAM

IC2 TA2111F-(EL)



• **Waveform**

① IC502 ⑰ SERVICE MODE during TRK servo OFF
2.4Vp-p
4.2MHz
VOLT/DIV : 1 V AC
TIME/DIV : 0.1msec

⑤ IC301 ⑯
2.3Vp-p
16.9 MHz
VOLT/DIV : 1 V AC
TIME/DIV : 50nsec

② IC502 ⑱ ESP : OFF
2.6Vp-p
7.335kHz
VOLT/DIV : 1 V AC
TIME/DIV : 50µsec

⑥ IC801 ㉘
3.0Vp-p
4.19 MHz
VOLT/DIV : 1 V AC
TIME/DIV : 0.2msec

③ IC502 ⑱ ESP : OFF
2.6Vp-p
44.008kHz
VOLT/DIV : 1 V AC
TIME/DIV : 20µsec

⑦ IC501 ㉒ PLAY MODE
0.85–1.15Vp-p
VOLT/DIV : 0.2 V AC
TIME/DIV : 0.5msec

④ IC502 ⑰ ESP : OFF
2.5Vp-p
2.11237MHz
VOLT/DIV : 1 V AC
TIME/DIV : 0.2µsec

Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⚠ : internal component.
- ▭ : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- B + : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground in service mode.
  no mark : CD PLAY OR COMMON
  ( ) : FM
  < > : AM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ➡ : AM
  ⇨ : CD

1-3. PRINTED WIRING BOARD

• **Semiconductor Location**

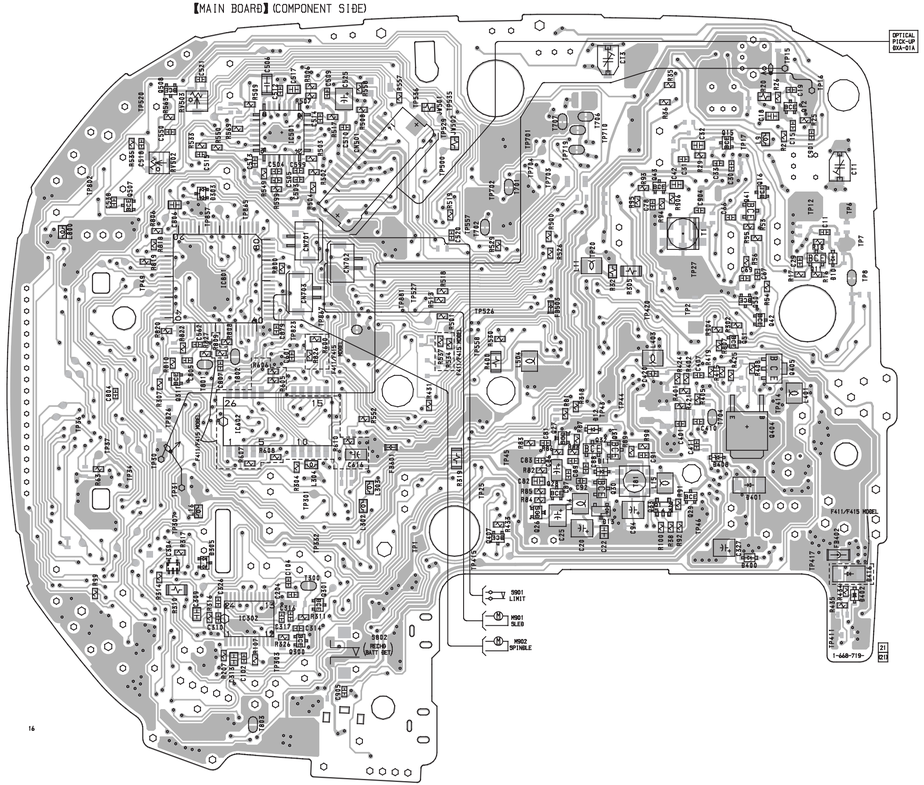
Ref. No.	Location	Ref. No.	Location
D1	B-14	Q11	D-11
D2	B-15	Q12	B-10
D3	A-16	Q13	G-8
D10	D-11	Q15	B-9
D11	G-8	Q16	C-10
D12	F-8	Q18	F-17
D13	G-8	Q19	F-17
D14	F-17	Q20	F-17
D101	I-19	Q21	B-16
D102	F-14	Q22	B-16
D201	I-19	Q25	F-22
D202	G-14	Q26	G-7
D301	E-14	Q27	F-7
D302	H-19	Q28	G-7
D303	C-3	Q29	G-9
D304	H-20	Q30	G-8
D305	G-3	Q31	F-8
D306	H-20	Q32	F-8
D400	G-10	Q33	G-9
D401	F-10	Q38	D-23
D402	H-11	Q40	D-16
D403	H-14	Q41	C-10
D407	E-16	Q42	E-10
D408	F-9	Q43	C-2
D416	H-11	Q44	D-16
D503	C-22	Q45	D-16
D801	J-20	Q47	D-23
D802	F-19	Q48	H-23
D806	J-20	Q49	D-16
		Q50	D-10
IC1	F-23	Q51	E-10
IC2	C-15	Q101	D-14
IC3	F-18	Q201	D-14
IC4	F-22	Q300	H-4
IC5	G-22	Q301	H-5
IC6	H-23	Q302	D-14
IC7	F-17	Q311	E-3
IC301	G-20	Q401	G-16
IC302	H-4	Q402	G-15
IC303	H-19	Q404	F-10
IC304	G-3	Q405	E-10
IC401	E-16	Q406	F-15
IC501	B-4	Q407	G-7
IC502	D-18	Q501	C-21
IC503	D-19	Q506	B-22
IC505	D-19	Q507	C-2
IC601	E-20	Q508	B-3
IC602	F-4	Q801	I-20
IC701	C-17	Q802	I-21
IC801	D-4	Q809	I-21

Note on Printed Wiring Board:

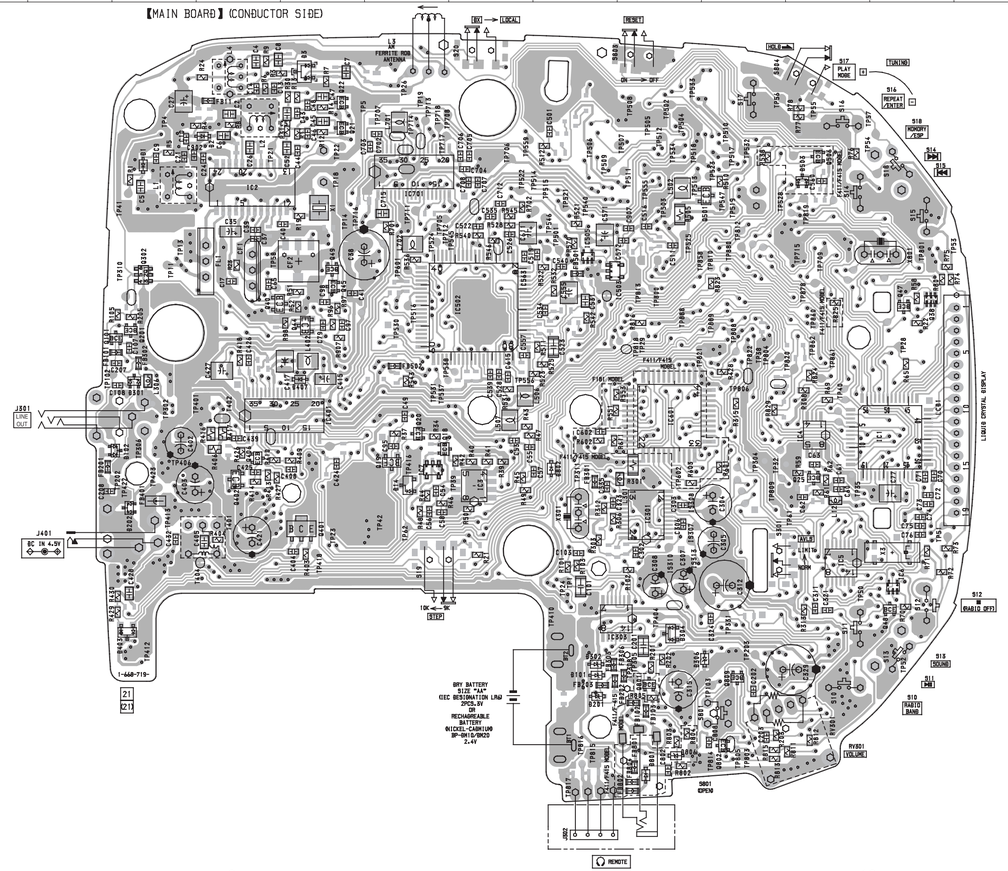
- ⟷ : parts extracted from the component side.
- ○ : Through hole.
- △ : internal component.
- ▒ : Pattern from the side which enables seeing.

Caution:
Pattern face side: Parts on the pattern face side seen from (Conductor side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component side) the parts face are indicated.

【MAIN BOARD】(COMPONENT SIDE)

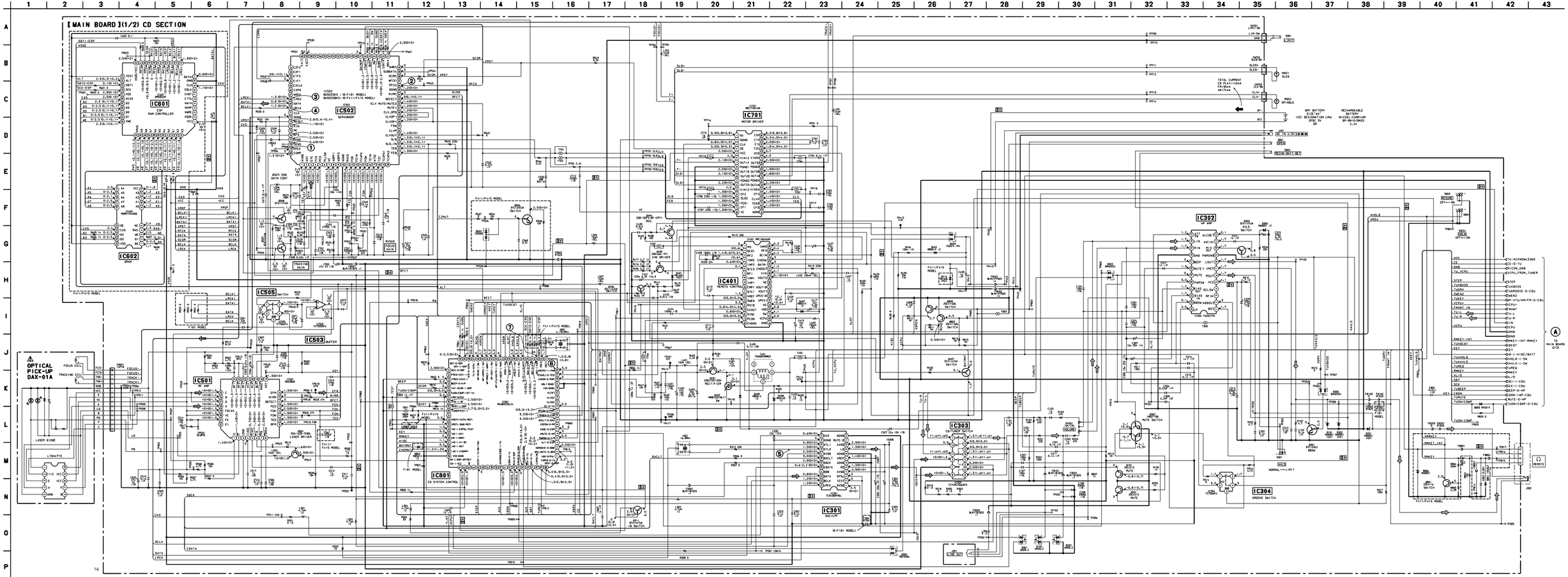


【MAIN BOARD】(CONDUCTOR SIDE)



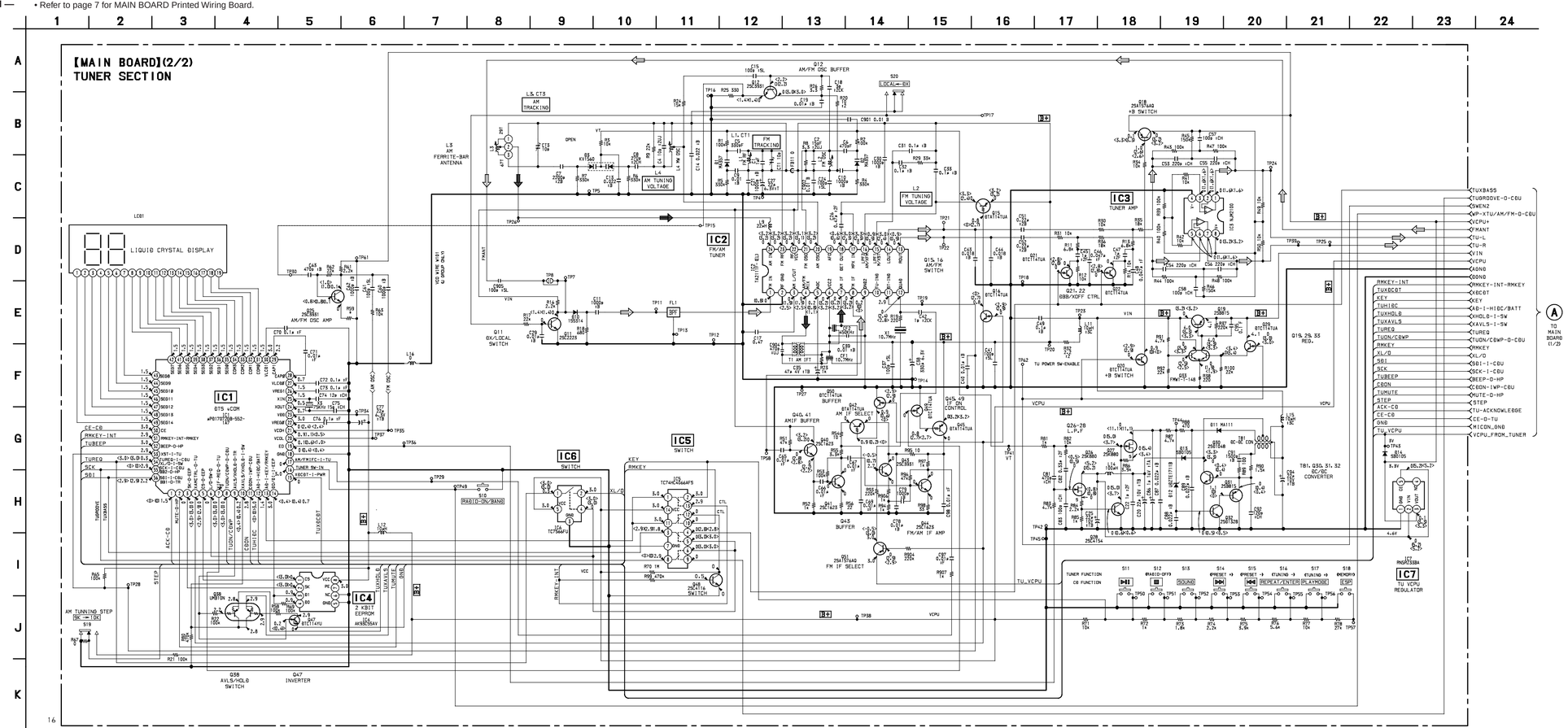
1-4. SCHEMATIC DIAGRAM — CD SECTION —

• Refer to page 6 for Waveform and note on Schematic Diagram.



1-5. SCHEMATIC DIAGRAM — TUNER SECTION —

• Refer to page 7 for MAIN BOARD Printed Wiring Board.



2. ELECTRICAL PARTS LIST

MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable

When indicating parts by reference number, please include the board name.

- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
	A-3293-962-A	MAIN BOARD, COMPLETE (F411/F415)			
		**********			
	A-3293-968-A	MAIN BOARD, COMPLETE (F181)			
		**********			
*	3-378-436-01	CUSHION, SARANET (F411/F415)			
	4-213-648-01	RING (PVC)			
	4-997-117-01	HOLDER (LCD)			
		< BATTERY TERMINAL >			
BT1	4-978-695-01	PLATE, TERMINAL, BATTERY			
BT2	4-978-695-01	PLATE, TERMINAL, BATTERY			
		< CAPACITOR >			
C1	1-164-346-11	CERAMIC CHIP	1uF		16V
C2	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C2	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C3	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C4	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C5	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C6	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C7	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C8	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C9	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C10	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C11	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C13	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C14	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C15	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C17	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C18	1-163-220-11	CERAMIC CHIP	3PF	0.25PF	50V
C19	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C20	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C21	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C22	1-164-346-11	CERAMIC CHIP	1uF		16V
C24	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C25	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C26	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C27	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C29	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C30	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C31	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C32	1-164-346-11	CERAMIC CHIP	1uF		16V
C33	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C35	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C37	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C38	1-128-057-11	ELECT	330uF	20%	6.3V
C39	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C40	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C41	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C42	1-163-217-11	CERAMIC CHIP	1PF	0.25PF	50V
C43	1-104-509-11	CERAMIC CHIP	0.018uF	10%	16V
C44	1-104-509-11	CERAMIC CHIP	0.018uF	10%	16V
C45	1-164-346-11	CERAMIC CHIP	1uF		16V
C46	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C47	1-164-346-11	CERAMIC CHIP	1uF		16V
C48	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C49	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C51	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C52	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C53	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C54	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C55	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C56	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C57	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C58	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C60	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C61	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C62	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C63	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C65	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C66	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C67	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C69	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C70	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C71	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C72	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C73	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C74	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C75	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C76	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C77	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C78	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C79	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C81	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C82	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C83	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C86	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C87	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V

MAIN

Ref. No.	Part No.	Description			Remarks
C88	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C89	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C91	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C92	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C94	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C95	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C97	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C98	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C101	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C102	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C103	1-115-156-11	CERAMIC CHIP	1uF		10V
C104	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C107	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C108	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C201	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C202	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C203	1-115-156-11	CERAMIC CHIP	1uF		10V
C204	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C207	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C208	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C302	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C303	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C304	1-124-635-00	ELECT	220uF	20%	6.3V
C305	1-126-382-11	ELECT	100uF	20%	4V
C306	1-162-962-11	CERAMIC CHIP	470PF	10%	50V (F181)
C307	1-126-795-11	ELECT	10uF	20%	25V
C308	1-126-795-11	ELECT	10uF	20%	25V
C309	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C310	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C311	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C312	1-128-057-11	ELECT	330uF	20%	6.3V
C313	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C314	1-115-156-11	CERAMIC CHIP	1uF		10V
C315	1-124-635-00	ELECT	220uF	20%	6.3V
C316	1-115-156-11	CERAMIC CHIP	1uF		10V
C317	1-115-156-11	CERAMIC CHIP	1uF		10V
C321	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C323	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C324	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C326	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C327	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C329	1-128-057-11	ELECT	330uF	20%	6.3V
C335	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C401	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C402	1-126-785-11	ELECT	47uF	20%	10V
C403	1-127-485-00	ELECT	33uF	20%	6.3V
C404	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C405	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C407	1-115-156-11	CERAMIC CHIP	1uF		10V
C408	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C410	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C411	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C415	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C417	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C420	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C421	1-124-635-00	ELECT	220uF	20%	6.3V
C424	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C425	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C426	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C427	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V

Ref. No.	Part No.	Description			Remarks
C428	1-164-346-11	CERAMIC CHIP	1uF		16V
C432	1-115-156-11	CERAMIC CHIP	1uF		10V
C439	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C501	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C504	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C505	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C506	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C509	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C510	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C511	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C512	1-115-156-11	CERAMIC CHIP	1uF		10V
C513	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C514	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C515	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C516	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C517	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C518	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C519	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C520	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C521	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C522	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C523	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C525	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C526	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C528	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C531	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C534	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C535	1-216-843-11	METAL CHIP	68K	5%	1/16W
C538	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C539	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C540	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C550	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C555	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C557	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C560	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (F411/F415)
C562	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C563	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C571	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C572	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C599	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C601	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C602	1-164-360-11	CERAMIC CHIP	0.1uF		16V (F411/F415)
C611	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C615	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C616	1-135-201-11	TANTALUM CHIP	10uF	20%	4V (F411/ F415)
C702	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C703	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C704	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C705	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C706	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C707	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C708	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C712	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C715	1-164-346-11	CERAMIC CHIP	1uF		16V

Ref. No.	Part No.	Description			Remarks
C802	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (F411/F415)
C804	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C805	1-115-156-11	CERAMIC CHIP	1uF		10V
C806	1-164-346-11	CERAMIC CHIP	1uF		16V
C807	1-115-156-11	CERAMIC CHIP	1uF		10V
C808	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C879	1-115-156-11	CERAMIC CHIP	1uF		10V
C901	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C902	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C904	1-164-362-11	CERAMIC CHIP	470PF	5%	50V
C905	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C907	1-164-360-11	CERAMIC CHIP	0.1uF		16V
		< CERAMIC FILTER >			
CF1	1-781-034-11	FILTER, CERAMIC			
CF2	1-579-823-21	FILTER, CERAMIC			
		< CONNECTOR >			
* CN1	1-750-374-11	CONNECTOR, FPC (ZIF) 14P			
CN501	1-566-530-11	CONNECTOR, FPC (ZIF) 14P			
* CN701	1-695-320-51	PIN, CONNECTOR (1.5MM)(SMD) 2P			
* CN702	1-695-320-31	PIN, CONNECTOR (1.5MM)(SMD) 2P			
CN703	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P			
		< TRIMMER >			
CT1	1-141-327-11	CAP, CHIP TYPE TRIMMER 10PF			
CT3	1-141-327-11	CAP, CHIP TYPE TRIMMER 10PF			
		< DIODE >			
D1	8-719-053-30	DIODE MA2S357-(TX). SO			
D2	8-719-053-30	DIODE MA2S357-(TX). SO			
D3	8-719-951-05	DIODE KV1560			
D10	8-719-038-20	DIODE 1SS314			
D11	8-719-404-50	DIODE MA111-TX			
D12	8-719-056-88	DIODE UDZ-TE-17-11B			
D13	8-719-938-72	DIODE SB01-05CP			
D14	8-719-938-72	DIODE SB01-05CP			
D101	8-719-420-90	DIODE MA8051-M			
D102	8-719-039-99	DIODE UMZ8.2T			
D201	8-719-420-90	DIODE MA8051-M			
D202	8-719-039-99	DIODE UMZ8.2T			
D301	8-719-039-99	DIODE UMZ8.2T			
D302	8-719-420-90	DIODE MA8051-M			
D303	8-719-941-86	DIODE DAN202U			
D304	8-719-992-02	DIODE RB705D			
D305	8-719-941-86	DIODE DAN202U			
D306	8-719-420-90	DIODE MA8051-M			
D400	8-719-058-24	DIODE RB501V-40TE-17			
D401	8-719-048-98	DIODE RB160L-40TE25			
D402	8-719-058-24	DIODE RB501V-40TE-17			
D403	8-719-049-10	DIODE 1SS374-TE85L			
D407	8-719-058-24	DIODE RB501V-40TE-17			
D408	8-719-022-90	DIODE MA8160M			
D414	8-719-048-98	DIODE RB160L-40TE25 (F181)			
D416	8-719-048-98	DIODE RB160L-40TE25 (F411/F415)			
D503	8-719-024-81	DIODE 1SS300-TE85L (F411/F415)			
D801	8-719-049-09	DIODE 1SS367-T3SONY (F411/F415)			
D802	8-719-058-24	DIODE RB501V-40TE-17 (F181)			
D806	8-719-420-90	DIODE MA8051-M (F411/F415)			

Ref. No.	Part No.	Description			Remarks
		< FERRITE BEAD >			
FB11	1-216-864-11	METAL CHIP	0	5%	1/16W
FB101	1-500-444-11	FERRITE	0uH		
FB102	1-500-238-22	FERRITE	0uH		
FB103	1-216-864-11	METAL CHIP	0	5%	1/16W
FB201	1-500-444-11	FERRITE	0uH		
FB202	1-500-238-22	FERRITE	0uH		
FB203	1-216-864-11	METAL CHIP	0	5%	1/16W
FB206	1-500-238-22	FERRITE	0uH (F411/F415)		
FB301	1-500-444-11	FERRITE	0uH		
FB302	1-500-444-11	FERRITE	0uH		
FB303	1-500-444-11	FERRITE	0uH		
FB306	1-500-238-22	FERRITE	0uH (F181)		
FB401	1-500-451-11	FERRITE	0uH		
FB402	1-500-451-11	FERRITE	0uH		
FB501	1-500-444-11	FERRITE	0uH		
FB502	1-500-238-22	FERRITE	0uH		
FB503	1-216-864-11	METAL CHIP	0	5%	1/16W
FB601	1-216-864-11	METAL CHIP	0	5%	1/16W
FB801	1-500-444-11	FERRITE	0uH (F411/F415)		
FB802	1-500-444-11	FERRITE	0uH (F411/F415)		
FB804	1-500-444-11	FERRITE	0uH (F411/F415)		
		< FILTER >			
FL1	1-236-711-21	FILTER, BAND PASS			
		< IC >			
IC1	8-759-548-51	IC uPD17072GB-552-1A7			
IC2	8-759-493-20	IC TA2111F-(EL)			
IC3	8-759-293-74	IC NJM2100E			
IC4	8-759-449-23	IC AK93C55AV-L			
IC5	8-759-523-03	IC TC74HC4066AFS-EL			
IC6	8-759-082-60	IC TC7S66FU			
IC7	8-759-493-39	IC RN5RZ33BA-TR			
IC301	8-759-483-60	IC TC9438FNEL			
IC302	8-759-522-87	IC TA2120FN(EL)			
IC303	8-759-523-03	IC TC74HC4066AFS-EL			
IC304	8-759-082-60	IC TC7S66FU			
IC401	8-759-483-61	IC MPC18A26VMEL			
IC501	8-759-432-83	IC BA6386K			
IC502	8-759-484-38	IC BU9325KS (F181)			
IC502	8-759-564-92	IC BU9325BKS (F411/F415)			
IC503	8-759-387-31	IC TC75S55F(TE85R)			
IC505	8-759-082-60	IC TC7S66FU			
IC601	8-759-484-37	IC SM5902AF (F411/F415)			
IC602	8-759-498-44	IC MSM51V4400D-70TSK (F411/F415)			
IC701	8-759-483-62	IC MPC17A51VMEL			
IC801	8-759-546-68	IC MC68HC05L24-SC440474CFU			
		< JACK >			
J301	1-778-696-11	JACK			
J302	1-580-680-11	JACK (🎧/REMOTE) (F411/F415)			
J302	1-774-804-11	JACK (🎧) (F181)			
J401	1-778-153-21	JACK,DC (POLARITY UNIFIED TYPE)			
		< JUMPER RESISTOR >			
JW501	1-216-295-91	SHORT	0		
JW502	1-216-295-91	SHORT	0		

MAIN

Ref. No.	Part No.	Description	Remarks
		< COIL >	
L1	1-416-547-11	COIL (WITH CORE)	
L2	1-416-548-11	COIL (WITH CORE)	
L3	X-4949-673-1	ANTENNA ASSY, HOLDER	
L4	1-411-989-11	COIL (WITH CORE) (AM OSC)	
L9	1-412-010-41	INDUCTOR CHIP 22uH	
L11	1-414-410-21	INDUCTOR 10uH	
L12	1-412-006-31	INDUCTOR CHIP 10uH	
L14	1-412-032-11	INDUCTOR CHIP 100uH	
L15	1-414-410-21	INDUCTOR 10uH	
L16	1-216-295-91	SHORT 0	
L301	1-469-034-11	INDUCTOR 4.7uH	
L302	1-469-034-11	INDUCTOR 4.7uH	
L303	1-469-034-11	INDUCTOR 4.7uH	
L304	1-469-034-11	INDUCTOR 4.7uH	
L306	1-216-295-91	SHORT 0	
L401	1-414-410-21	INDUCTOR 10uH	
L402	1-414-404-11	INDUCTOR 100uH	
L403	1-414-404-11	INDUCTOR 100uH	
L502	1-414-410-21	INDUCTOR 10uH	
L504	1-414-410-21	INDUCTOR 10uH	
L506	1-414-402-11	INDUCTOR 47uH	
L507	1-414-410-21	INDUCTOR 10uH	
L701	1-414-402-11	INDUCTOR 47uH	
L702	1-414-402-11	INDUCTOR 47uH	
L800	1-216-295-91	SHORT 0 (F411/F415)	
L800	1-469-034-11	INDUCTOR 4.7uH (F181)	
		< LIQUID CRYSTAL DISPLAY >	
LCD1	1-803-018-11	DISPLAY PANEL, LIQUID CRYSTAL	
		< TRANSISTOR >	
Q11	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q12	8-729-423-52	TRANSISTOR 2SC3931-C	
Q15	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q16	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q18	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR	
Q19	8-729-800-71	TRANSISTOR 2SB815B7-TB	
Q20	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q21	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q22	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q25	8-729-423-52	TRANSISTOR 2SC3931-C	
Q26	8-729-231-96	TRANSISTOR 2SK880GR-TE85L	
Q27	8-729-231-96	TRANSISTOR 2SK880GR-TE85L	
Q28	8-729-602-21	TRANSISTOR 2SC4154-F	
Q29	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q30	8-729-800-37	TRANSISTOR 2SD1048-X7	
Q31	8-729-800-71	TRANSISTOR 2SB815B7-TB	
Q32	8-729-400-55	TRANSISTOR 2SD1328-S	
Q33	8-729-903-10	TRANSISTOR FMW1	
Q38	8-729-045-50	TRANSISTOR UMB10N-TN	
Q40	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q41	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q42	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q43	8-729-423-52	TRANSISTOR 2SC3931-C	
Q44	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q45	8-729-028-74	TRANSISTOR DTA114TUA-T106	

Ref. No.	Part No.	Description	Remarks
Q47	8-729-028-99	TRANSISTOR DTC114YUA-T106	
Q48	8-729-231-74	TRANSISTOR 2SC4116-GL	
Q49	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q50	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q51	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR	
Q101	8-729-209-06	TRANSISTOR 2SC4213-A	
Q201	8-729-209-06	TRANSISTOR 2SC4213-A	
Q300	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q301	8-729-029-06	TRANSISTOR DTC124EUA-T106	
Q302	8-729-907-39	TRANSISTOR IMD2	
Q311	8-729-028-92	TRANSISTOR DTA144TUA-T106	
Q401	8-729-044-09	TRANSISTOR 2SD2153T100V	
Q402	8-729-044-10	TRANSISTOR MMBF0201NLT1	
Q404	8-729-921-93	TRANSISTOR 2SB1182F5-QR	
Q405	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q406	8-729-028-97	TRANSISTOR DTC114TUA-T106	
Q407	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q501	8-729-216-22	TRANSISTOR 2SA1162-G	
Q506	8-729-029-06	TRANSISTOR DTC124EUA-T106 (F411/F415)	
Q507	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q508	8-729-028-74	TRANSISTOR DTA114TUA-T106	
Q801	8-729-231-74	TRANSISTOR 2SC4116-GL (F411/F415)	
Q802	8-729-231-74	TRANSISTOR 2SC4116-GL	
Q809	8-729-231-74	TRANSISTOR 2SC4116-GL	
		< RESISTOR >	
R1	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R2	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R3	1-216-295-91	SHORT 0	
R3	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R4	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R5	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R6	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R7	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R8	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R9	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R11	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R12	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R13	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R14	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R16	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R17	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R18	1-216-819-11	METAL CHIP 680 5% 1/16W	
R19	1-216-813-11	METAL CHIP 220 5% 1/16W	
R20	1-216-001-00	METAL CHIP 10 5% 1/10W	
R21	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R22	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R23	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R24	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R25	1-216-815-11	METAL CHIP 330 5% 1/16W	
R26	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R29	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R30	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R31	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R32	1-216-298-00	METAL CHIP 2.2 5% 1/10W	
R34	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R35	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R36	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R37	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R38	1-216-813-11	METAL CHIP 220 5% 1/16W	
R39	1-216-845-11	METAL CHIP 100K 5% 1/16W	

Ref. No.	Part No.	Description			Remarks
R40	1-216-845-11	METAL CHIP	100K	5%	1/16W
R41	1-216-833-11	METAL CHIP	10K	5%	1/16W
R42	1-216-833-11	METAL CHIP	10K	5%	1/16W
R43	1-216-845-11	METAL CHIP	100K	5%	1/16W
R44	1-216-845-11	METAL CHIP	100K	5%	1/16W
R45	1-216-847-11	METAL CHIP	150K	5%	1/16W
R46	1-216-847-11	METAL CHIP	150K	5%	1/16W
R47	1-216-845-11	METAL CHIP	100K	5%	1/16W
R48	1-216-845-11	METAL CHIP	100K	5%	1/16W
R49	1-216-833-11	METAL CHIP	10K	5%	1/16W
R50	1-216-833-11	METAL CHIP	10K	5%	1/16W
R51	1-216-841-11	METAL CHIP	47K	5%	1/16W
R52	1-216-821-11	METAL CHIP	1K	5%	1/16W
R53	1-216-845-11	METAL CHIP	100K	5%	1/16W
R54	1-216-797-11	METAL CHIP	10	5%	1/16W
R55	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R56	1-216-801-11	METAL CHIP	22	5%	1/16W
R58	1-216-845-11	METAL CHIP	100K	5%	1/16W
R59	1-216-797-11	METAL CHIP	10	5%	1/16W
R61	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R62	1-216-837-11	METAL CHIP	22K	5%	1/16W
R63	1-216-833-11	METAL CHIP	10K	5%	1/16W
R65	1-216-845-11	METAL CHIP	100K	5%	1/16W
R69	1-216-845-11	METAL CHIP	100K	5%	1/16W
R70	1-216-857-11	METAL CHIP	1M	5%	1/16W
R71	1-216-833-11	METAL CHIP	10K	5%	1/16W
R72	1-216-821-11	METAL CHIP	1K	5%	1/16W
R73	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R74	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R75	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R76	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R77	1-216-833-11	METAL CHIP	10K	5%	1/16W
R78	1-216-838-11	METAL CHIP	27K	5%	1/16W
R80	1-216-853-11	METAL CHIP	470K	5%	1/16W
R81	1-216-821-11	METAL CHIP	1K	5%	1/16W
R82	1-216-833-11	METAL CHIP	10K	5%	1/16W
R83	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R84	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R85	1-216-821-11	METAL CHIP	1K	5%	1/16W
R86	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R87	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R88	1-216-817-11	METAL CHIP	470	5%	1/16W
R89	1-216-809-11	METAL CHIP	100	5%	1/16W
R90	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R91	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R92	1-216-837-11	METAL CHIP	22K	5%	1/16W
R93	1-216-849-11	METAL CHIP	220K	5%	1/16W
R94	1-216-821-11	METAL CHIP	1K	5%	1/16W
R95	1-216-797-11	METAL CHIP	10	5%	1/16W
R96	1-216-841-11	METAL CHIP	47K	5%	1/16W
R97	1-216-821-11	METAL CHIP	1K	5%	1/16W
R98	1-216-803-11	METAL CHIP	33	5%	1/16W
R99	1-216-853-11	METAL CHIP	470K	5%	1/16W
R100	1-216-837-11	METAL CHIP	22K	5%	1/16W
R101	1-216-813-11	METAL CHIP	220	5%	1/16W
R102	1-216-845-11	METAL CHIP	100K	5%	1/16W
R103	1-216-841-11	METAL CHIP	47K	5%	1/16W
R105	1-216-821-11	METAL CHIP	1K	5%	1/16W
R107	1-216-793-11	RES,CHIP	4.7	5%	1/16W
R201	1-216-813-11	METAL CHIP	220	5%	1/16W
R202	1-216-845-11	METAL CHIP	100K	5%	1/16W
R203	1-216-841-11	METAL CHIP	47K	5%	1/16W
R205	1-216-821-11	METAL CHIP	1K	5%	1/16W
R207	1-216-793-11	RES,CHIP	4.7	5%	1/16W
R301	1-216-296-91	SHORT	0		
R302	1-216-864-11	METAL CHIP	0	5%	1/16W
R303	1-216-797-11	METAL CHIP	10	5%	1/16W
R304	1-216-803-11	METAL CHIP	33	5%	1/16W
R305	1-216-296-91	SHORT	0		
R306	1-216-864-11	METAL CHIP	0	5%	1/16W
R307	1-216-864-11	METAL CHIP	0	5%	1/16W
R308	1-216-864-11	METAL CHIP	0	5%	1/16W
R310	1-216-142-00	RES,CHIP	4.7	5%	1/8W
R311	1-216-845-11	METAL CHIP	100K	5%	1/16W
R312	1-216-815-11	METAL CHIP	330	5%	1/16W
R313	1-216-857-11	METAL CHIP	1M	5%	1/16W
R314	1-216-864-11	METAL CHIP	0	5%	1/16W
R315	1-216-864-11	METAL CHIP	0	5%	1/16W
R316	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R317	1-216-845-11	METAL CHIP	100K	5%	1/16W
R318	1-216-864-11	METAL CHIP	0	5%	1/16W
R319	1-216-296-91	SHORT	0		
R326	1-216-839-11	METAL CHIP	33K	5%	1/16W
R400	1-216-296-91	SHORT	0		
R401	1-218-911-11	RES,CHIP	470K	0.50%	1/16W
R402	1-218-899-11	RES,CHIP	150K	0.50%	1/16W
R403	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R404	1-216-799-11	METAL CHIP	15	5%	1/16W
R405	1-216-864-11	METAL CHIP	0	5%	1/16W
R406	1-216-304-11	METAL CHIP	3.3	5%	1/10W
R408	1-216-809-11	METAL CHIP	100	5%	1/16W
R409	1-216-837-11	METAL CHIP	22K	5%	1/16W
R410	1-216-857-11	METAL CHIP	1M	5%	1/16W
R413	1-216-845-11	METAL CHIP	100K	5%	1/16W
R414	1-216-857-11	METAL CHIP	1M	5%	1/16W
R415	1-216-815-11	METAL CHIP	330	5%	1/16W
R416	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R417	1-216-302-00	METAL CHIP	2.7	5%	1/10W
R418	1-216-864-11	METAL CHIP	0	5%	1/16W
R419	1-216-849-11	METAL CHIP	220K	5%	1/16W
R421	1-216-833-11	METAL CHIP	10K	5%	1/16W
R424	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
R425	1-216-864-11	METAL CHIP	0	5%	1/16W
R426	1-216-857-11	METAL CHIP	1M	5%	1/16W
R427	1-216-845-11	METAL CHIP	100K	5%	1/16W
R428	1-216-864-11	METAL CHIP	0	5%	1/16W
R429	1-218-915-11	RES,CHIP	680K	0.50%	1/16W
R430	1-218-907-11	RES,CHIP	330K	0.50%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W
R433	1-216-857-11	METAL CHIP	1M	5%	1/16W
R434	1-218-895-11	RES,CHIP	100K	0.50%	1/16W
R435	1-218-883-11	RES,CHIP	33K	0.50%	1/16W
R500	1-216-821-11	METAL CHIP	1K	5%	1/16W
R501	1-216-821-11	METAL CHIP	1K	5%	1/16W
R502	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R503	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R504	1-216-840-11	METAL CHIP	39K	5%	1/16W
R505	1-216-142-00	RES,CHIP	4.7	5%	1/8W
R506	1-216-833-11	METAL CHIP	10K	5%	1/16W
R507	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

MAIN

Ref. No.	Part No.	Description			Remarks
R508	1-216-833-11	METAL CHIP	10K	5%	1/16W
R509	1-216-836-11	METAL CHIP	18K	5%	1/16W
R510	1-216-821-11	METAL CHIP	1K	5%	1/16W
R511	1-216-835-11	METAL CHIP	15K	5%	1/16W
R512	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R513	1-216-864-11	METAL CHIP	0	5%	1/16W
R517	1-216-835-11	METAL CHIP	15K	5%	1/16W
R518	1-216-821-11	METAL CHIP	1K	5%	1/16W
R519	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R521	1-216-835-11	METAL CHIP	15K	5%	1/16W
R522	1-216-853-11	METAL CHIP	470K	5%	1/16W
R523	1-216-848-11	METAL CHIP	180K	5%	1/16W
R525	1-216-821-11	METAL CHIP	1K	5%	1/16W
R526	1-216-821-11	METAL CHIP	1K	5%	1/16W
R528	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R529	1-216-864-11	METAL CHIP	0	5%	1/16W
R530	1-216-864-11	METAL CHIP	0	5%	1/16W
R531	1-216-833-11	METAL CHIP	10K	5%	1/16W
R532	1-218-877-11	RES,CHIP	18K	0.50%	1/16W
R533	1-216-841-11	METAL CHIP	47K	5%	1/16W
R534	1-216-833-11	METAL CHIP	10K	5%	1/16W (F411/F415)
R535	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R536	1-216-821-11	METAL CHIP	1K	5%	1/16W
R537	1-216-864-11	METAL CHIP	0	5%	1/16W (F411/F415)
R538	1-216-833-11	METAL CHIP	10K	5%	1/16W (F411/F415)
R540	1-216-864-11	METAL CHIP	0	5%	1/16W
R542	1-216-864-11	METAL CHIP	0	5%	1/16W
R543	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R545	1-216-849-11	METAL CHIP	220K	5%	1/16W
R546	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R549	1-216-833-11	METAL CHIP	10K	5%	1/16W
R550	1-216-864-11	METAL CHIP	0	5%	1/16W
R551	1-216-864-11	METAL CHIP	0	5%	1/16W (F181)
R552	1-216-864-11	METAL CHIP	0	5%	1/16W (F181)
R553	1-216-864-11	METAL CHIP	0	5%	1/16W (F181)
R557	1-216-864-11	METAL CHIP	0	5%	1/16W
R558	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R563	1-216-845-11	METAL CHIP	100K	5%	1/16W
R569	1-216-841-11	METAL CHIP	47K	5%	1/16W
R570	1-218-887-11	RES,CHIP	47K	0.50%	1/16W
R599	1-216-851-11	METAL CHIP	330K	5%	1/16W
R600	1-216-864-11	METAL CHIP	0	5%	1/16W (F411/F415)
R601	1-216-864-11	METAL CHIP	0	5%	1/16W (F411/F415)
R602	1-216-833-11	METAL CHIP	10K	5%	1/16W (F411/F415)
R603	1-216-864-11	METAL CHIP	0	5%	1/16W (F411/F415)

Ref. No.	Part No.	Description			Remarks
R605	1-216-821-11	METAL CHIP	1K	5%	1/16W (F411/F415)
R606	1-216-821-11	METAL CHIP	1K	5%	1/16W (F411/F415)
R607	1-216-821-11	METAL CHIP	1K	5%	1/16W (F411/F415)
R608	1-216-821-11	METAL CHIP	1K	5%	1/16W (F411/F415)
R610	1-216-864-11	METAL CHIP	0	5%	1/16W (F411/F415)
R611	1-216-864-11	METAL CHIP	0	5%	1/16W (F411/F415)
R701	1-216-864-11	METAL CHIP	0	5%	1/16W
R702	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R800	1-216-821-11	METAL CHIP	1K	5%	1/16W
R802	1-216-833-11	METAL CHIP	10K	5%	1/16W
R803	1-216-821-11	METAL CHIP	1K	5%	1/16W
R804	1-216-854-11	METAL CHIP	560K	5%	1/16W (F411/F415)
R805	1-216-861-11	METAL CHIP	2.2M	5%	1/16W (F411/F415)
R806	1-216-821-11	METAL CHIP	1K	5%	1/16W
R807	1-216-821-11	METAL CHIP	1K	5%	1/16W
R808	1-216-851-11	METAL CHIP	330K	5%	1/16W
R809	1-216-851-11	METAL CHIP	330K	5%	1/16W (F411/F415)
R810	1-216-821-11	METAL CHIP	1K	5%	1/16W
R811	1-216-857-11	METAL CHIP	1M	5%	1/16W
R812	1-216-857-11	METAL CHIP	1M	5%	1/16W
R813	1-216-857-11	METAL CHIP	1M	5%	1/16W
R815	1-216-857-11	METAL CHIP	1M	5%	1/16W
R816	1-216-821-11	METAL CHIP	1K	5%	1/16W
R818	1-216-857-11	METAL CHIP	1M	5%	1/16W
R819	1-216-821-11	METAL CHIP	1K	5%	1/16W (F411/F415)
R820	1-216-821-11	METAL CHIP	1K	5%	1/16W
R822	1-216-864-11	METAL CHIP	0	5%	1/16W
R823	1-216-864-11	METAL CHIP	0	5%	1/16W
R824	1-216-821-11	METAL CHIP	1K	5%	1/16W
R825	1-216-821-11	METAL CHIP	1K	5%	1/16W (F411/F415)
R826	1-216-864-11	METAL CHIP	0	5%	1/16W (F411/F415)
R827	1-216-857-11	METAL CHIP	1M	5%	1/16W
R829	1-216-864-11	METAL CHIP	0	5%	1/16W
R904	1-216-849-11	METAL CHIP	220K	5%	1/16W
R906	1-216-821-11	METAL CHIP	1K	5%	1/16W
R907	1-216-821-11	METAL CHIP	1K	5%	1/16W
		< VARIABLE RESISTOR >			
RV1	1-223-274-11	RES, ADJ, CERMET 2.2K			
RV301	1-223-609-21	RES, VAR, CARBON 10K/10K (◄)			
RV502	1-223-587-11	RES, ADJ, CARBON 22K			
RV503	1-223-587-11	RES, ADJ, CARBON 22K			
		< SWITCH >			
S10	1-692-014-11	SWITCH, KEY BOARD (RADIO/BAND)			
S11	1-692-014-11	SWITCH, KEY BOARD (►II)			
S12	1-692-014-11	SWITCH, KEY BOARD (■/RADIO OFF)			
S13	1-771-482-11	SWITCH, KEY BOARD (SOUND)			
S14	1-692-014-11	SWITCH, KEY BOARD (►►I)			

Ref. No.	Part No.	Description	Remarks
S15	1-692-014-11	SWITCH, KEY BOARD (I◀◀)	
S16	1-692-014-11	SWITCH, KEY BOARD (TUNING-,REPEAT/ENTER)	
S17	1-692-014-11	SWITCH, KEY BOARD (TUNING+,PLAY MODE)	
S18	1-771-482-11	SWITCH, KEY BOARD (MEMORY/ESP)	
S19	1-572-922-11	SWITCH, SLIDE (9K/10K)	
S20	1-572-922-11	SWITCH, SLIDE (DX/LOCAL)	
S301	1-572-922-11	SWITCH, SLIDE (AVLS)	
S801	1-762-822-11	SWITCH, PUSH (1 KEY)(OPEN)	
S802	1-762-455-21	SWITCH, PUSH (1 KEY)(RECHG BATT DET)	
S803	1-572-922-11	SWITCH, SLIDE (RESUME)	
S804	1-572-922-11	SWITCH, SLIDE (HOLD)	
		< TRANSFORMER >	
T1	1-411-603-11	COIL (AM-MIX)	
T81	1-431-243-11	TRANSFORMER, DC-DC CONVERTER	
T401	1-475-573-11	TRANSFORMER, DC-DC CONVERTER	
		< VIBRATOR >	
X1	1-767-789-21	FILTER, CERAMIC	
X3	1-767-768-41	VIBRATOR, CRYSTAL (75KHz)	
X301	1-760-307-11	VIBRATOR, CERAMIC (16.934MHz)	
X801	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)	

9-924-938-82

Sony Corporation
Personal A&V Products Company

99A1692-1
Printed in Japan ©1999.1
Published by Quality Engineering Dept.
(Shibaura)